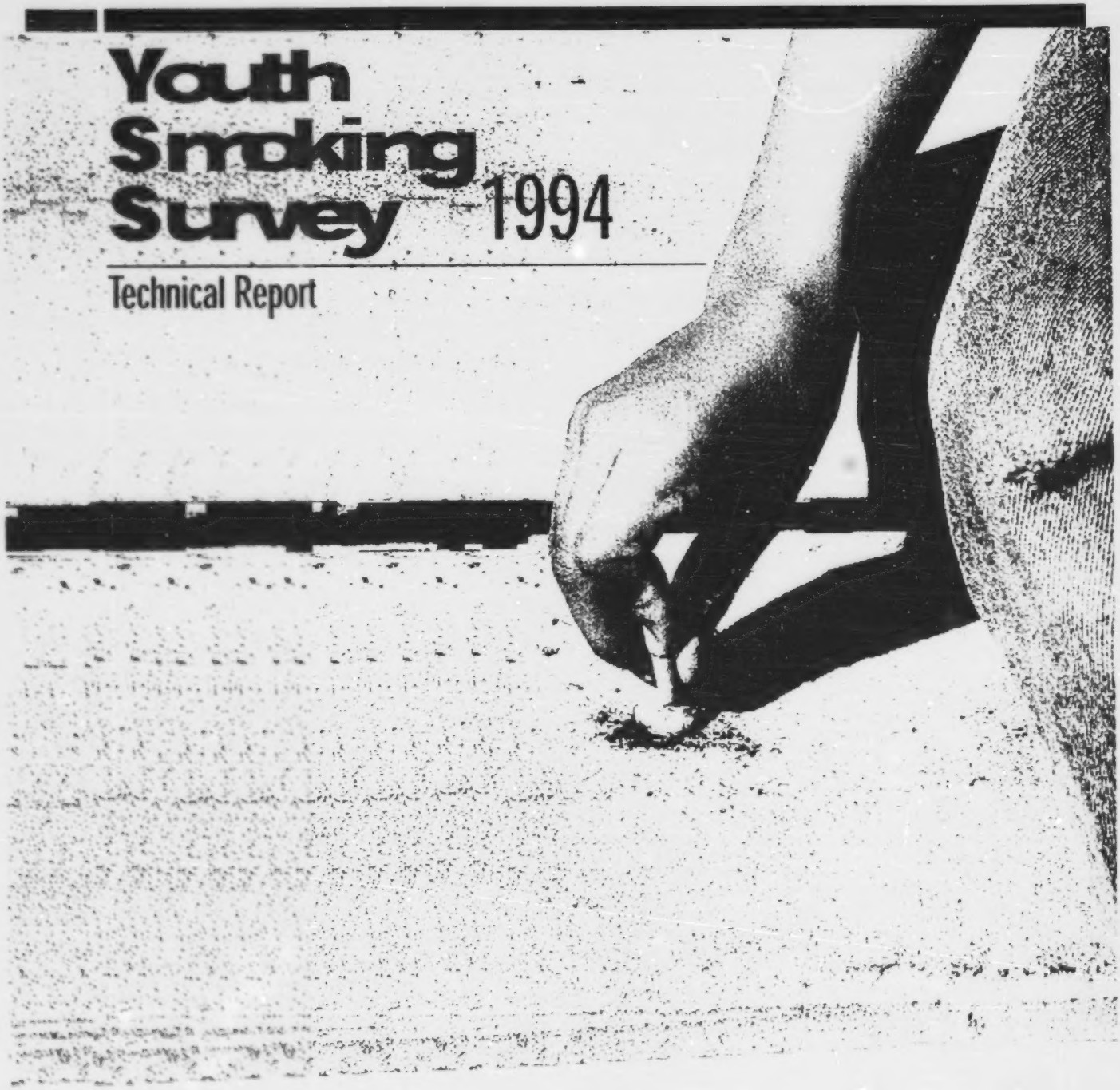
Health Canada / Santé Canada

Youth Smoking Survey 1994

Technical Report



Canada

Youth Smoking Survey 1994

Technical Report

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Health Canada

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Preface

This report of the 1994 Youth Smoking Survey provides national and provincial results of this important Canada-wide survey, based on almost 24,000 questionnaires and interviews completed with young Canadians aged 10-19. It describes smoking practices and related knowledge, beliefs, and attitudes, as well as social and marketing influences and restrictions on smoking. The results provide updates for some key topics that have been previously surveyed, such as the prevalence of youth smoking, while many other topics were surveyed in 1994 for the first time.

This report expands on the fact sheets published by Health Canada in January 1996. It touches on every topic covered in the survey, and, for most, it provides detailed results classified by age, sex, and province of residence. The report is considered "technical" only because of this level of detail, not because of any requirement for statistical sophistication to read it. Indeed, the intended readership consists primarily of individuals in public, voluntary, and private agencies who are responsible for developing policies and programs to combat youth smoking. Epidemiologists and other researchers are an important audience as well; they will find many issues in this report worthy of further examination. Survey data in electronic form are available for this purpose from Statistics Canada. This report is accessible through Health Canada's home page on the Internet: http://www.hwc.ca/datahpb/dataehd

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Analysis and writing of this report were managed by Jürgen Rehm of the Addiction Research Foundation, with assistance from Susan Bondy. Scientific editing was by Tom Stephens, with assistance from Margaret Morin. Technical editing was by Marla Sheffer, and final production in Health Canada was coordinated by Beverley Bell. Thanks are due to Larry Peters, PhD, Institute of Health Promotion and Department of Health Care and Epidemiology, University of British Columbia, for reviewing the entire report and to many others who reviewed individual chapters, as noted in those chapters. Thanks are also due to Julie Grayson and Maureen Kothare of the Addiction Research Foundation and Sylvie Lacombe of Health Canada for administrative support.

But most of all, readers of this report are indebted to the 23,800 young Canadians who completed the questionnaires and interviews and to their teachers, school administrators, and parents who demonstrated their interest in youth health by their generous cooperation with project staff.

Disclaimer

This report was written by 13 specialists from a variety of agencies and backgrounds, united by an interest in and a concern about youth smoking. The opinions expressed in the chapters, found primarily in Chapter 10 and the Discussion sections of Chapters 3 through 9, are those of the authors and are not necessarily endorsed by Health Canada or the employers of the authors.

Notes on the Tables and Figures

Symbols

* Moderate sampling variability (CV between 16.5% and 33.3%); interpret with caution

\# Data suppressed due to high sampling variability (CV > 33.3% or sample size less than 30)

\- Data not available.

See Chapter 2 for a more complete explanation.

Table Numbering

Tables designated by a letter appear in the text on the same page or immediately following the reference to them. Tables designated by a number are more detailed and follow the chapter.

Table Entries

Except for the population estimate, which is in thousands ('000), most table entries are percentages that add up to 100% across the rows. However, since whole numbers are presented, some rounding error may occur, and totals may not equal 100% exactly. All entries are weighted to reflect the estimated distribution among the entire Canadian population of youth in this age bracket.

Missing Data

Missing data are not reported separately in the tables except when they amount to a substantial proportion of the total (10% or more). If not reported, missing data have been averaged across the categories that are reported.

Statistical Significance

Differences highlighted in the text are statistically significant at the 95% level. Chapter 2 explains this testing in further detail and provides tables that the reader can use for testing of differences between population subgroups.

Chapter 1

Introduction

Thomas Stephens, PhD
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and
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Health Canada, Ottawa

Acknowledgements: Thanks are owed to Christina Mills (Health Canada) for her constructive review of an earlier draft of this chapter.

Survey Background and Objectives
The Context of the Youth Smoking Survey
Objectives of the YSS
Overview of YSS Content
Uses of the YSS Data
Overview of YSS Methods

Organization of the Report
Conceptual Framework of the Analysis
Format of the Report
Format of Chapters 3-9

References

Survey Background and Objectives

The Context of the Youth Smoking Survey

The 1994 Youth Smoking Survey (YSS) is Canada's most detailed survey to date of young people's smoking and related attitudes, beliefs, knowledge, and social influences. Although the smoking behaviour of Canadian youth[a] has been surveyed in the past, the YSS is only the second survey ever and the first in 16 years with a sample large enough for estimates by single years of age and for all 10 provinces. On topics other than the prevalence of smoking, the YSS is by far the most comprehensive survey to date of tobacco use by children and adolescents.

The YSS was designed during a period when the long-standing annual decline in the prevalence of smoking seemed to have stalled, and launched shortly after federal tobacco taxes were reduced in February 1994 in an effort to curb cigarette smuggling. In this context, a federal strategy was initiated to monitor tobacco use during this period. The YSS was part of this strategy.

In 1994, 24-30% of Canadians aged 15-19 were current smokers, depending on the source (see Chapter 2), a rate that is clearly higher than in 1990 (21%) (Fig. 1-A).[41] Similarly, there is evidence that the prevalence of adult smoking was higher in 1994[46] than it had been in 1992 or 1993.[50] This revival in smoking, especially by men, followed 25 years of steady declines among both sexes (Fig. 1-B).

The costs of smoking are well documented and are not reviewed in detail here. Smoking caused over 45,000 deaths in Canada in 1993[34] and is projected to cause almost 47,000 deaths in the year 2000.[12] Such a toll, which is based on optimistic projections about the prevalence of smoking, would represent an *increase* of 24% since 1991 in deaths among female smokers, far outweighing a decline of 4% in deaths among male smokers.[12]

a. Throughout this report, the term "youth" is used to refer to young people aged 10-19 of both sexes.

Figure 1-A
Current Smoking, by Sex, Age 15-19, Canada, 1970-1994

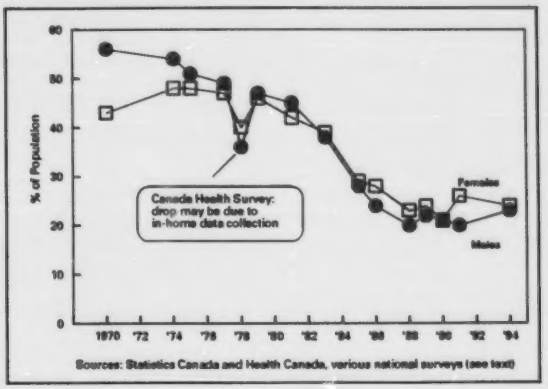

% of Population
Canada Health Survey: drop may be due to in-home data collection
Females
Males
1970 '72 '74 '76 '78 '80 '82 '84 '86 '88 '90 '92 '94
Sources: Statistics Canada and Health Canada, various national surveys (see text)

Figure 1-B
Current Smoking, by Sex, Age 15+, Canada, 1970-1994

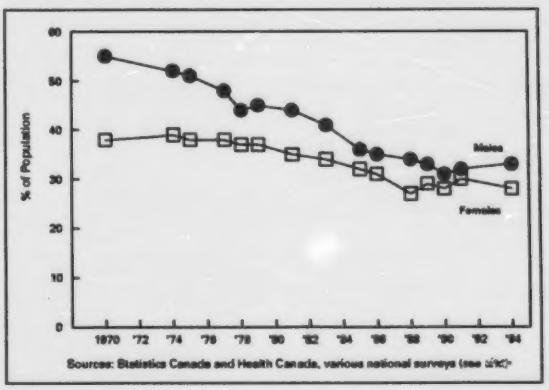

% of Population
Males
Females
1970 '72 '74 '76 '78 '80 '82 '84 '86 '88 '90 '92 '94
Sources: Statistics Canada and Health Canada, various national surveys (see text)

Figure 1-C
Prevalence of Current Smoking in 1994 and Projected Mortality in 2000 Due to Smoking, by Province, Men Aged 20+, Canada

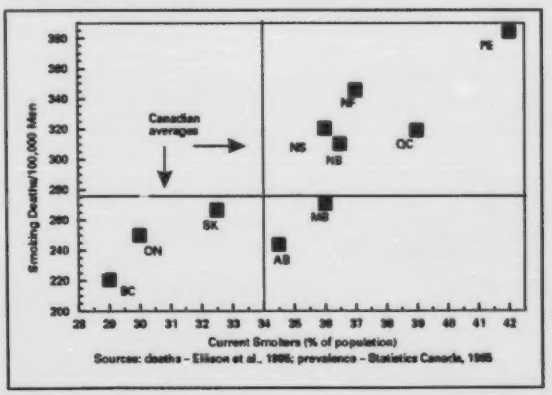
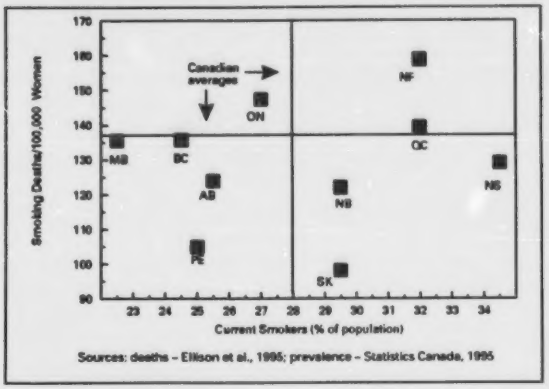
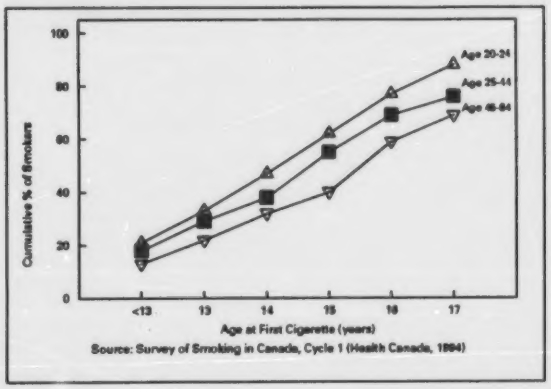


Figure 1-D
Prevalence of Current Smoking in 1994 and Projected Mortality in 2000 Due to Smoking, by Province, Women Aged 20+, Canada



Sources: deaths - Ellison et al., 1995; prevalence - Statistics Canada, 1995

Figure 1-E
Age Smoking Began, by Age Group, Current Smokers, Canada, 1994



Source: Survey of Smoking in Canada, Cycle 1 (Health Canada, 1994)

Adult smoking varies greatly among the provinces, as does the rate of smoking-attributable deaths. [12] Indeed, there is a very high correspondence between these two statistics, particularly for men but also for women, which holds even when smoking is plotted against death rates within a brief time span instead of the 25-30 year period that is the typical delay before smoking has its inevitable impact (Figs. 1-C and 1-D). With the passage of time, smoking-attributable deaths among women can thus be expected to increase over current rates in Nova Scotia, Quebec, New Brunswick, and Saskatchewan – provinces where smoking by adult women is above the Canadian average while smoking-related deaths are below average (Fig. 1-D).

In addition to the enormous human cost of smoking, there are economic costs due to lost productivity and health care for smoking-related illnesses. This cost has been estimated in separate studies at $10 billion [32,44] – double the government revenues of $5.1 billion in 1993-94 from tobacco taxes.

Adult death and disease due to smoking are a direct outcome of the health burden for the smoker who begins at a young age and never quits. And there is ample evidence that smokers do start at a young age: recent surveys based on adult recall indicate that substantial proportions of adult smokers had started by their mid-teens. Moreover, there is a tendency toward younger initiation in more recent cohorts (Fig. 1-E). [20]

The corollary of the early start is the need for prevention and, where prevention does not succeed, for cessation programs directed specifically at youth. Recent Canadian data show that smokers aged 15-19 are among the most ready to quit, while those aged 20-24 are the least ready. [18] This underlines the urgency of monitoring the behaviour and attitudes of young smokers and of designing policies and programs to reach them.

Prevention, cessation, and protection are the three pillars of Canada's national anti-tobacco strategy. First articulated in the 1987 *Directional Paper of the National Program to Reduce Tobacco Use in Canada*,[11] these three objectives were reiterated in the update of the *National Strategy to Reduce Tobacco Use* in 1993[21] and the *Tobacco Demand Reduction Strategy* of 1994.[19] Protection and cessation are the focus of *Tobacco Control, A Blueprint to Protect the Health of Canadians*, released by Health Canada in late 1995. [15]

The strategies and tactics outlined in these documents make it clear that prevention, protection, and cessation are mutually reinforcing. Prevention and cessation both serve to reduce smoking and thus environmental tobacco smoke, while protection measures promote cessation by removing opportunities to smoke. Protective measures also reinforce prevention efforts by reducing the modelling of smoking as a normal and desirable behaviour.

To pursue all of these objectives effectively, data are needed on behaviour, attitudes, beliefs, knowledge, and social influences, particularly among the young. The YSS is the best source yet of such data.

Objectives of the YSS

In light of the concern over smoking generally and by youth in particular, the YSS was put in place in 1994 with the following objectives:

- to provide the most detailed national picture of youth smoking behaviour yet obtained, especially baseline data on many topics for the crucial years between ages 10 and 14;
- to provide insights into the social, regulatory, educational, and commercial influences that youth face in deciding whether or not to experiment with or take up smoking, continue with the habit, or quit;
- to establish a resource for making sound, evidence-based decisions on federal and provincial policies and programs to control tobacco use among Canada's youth; and
- in the long run, with the possibility of future repetitions, to form an integral part of Canada's tobacco consumption monitoring system.

Overview of YSS Content

Smoking behaviour has been monitored for 30 years in Canada, and youth aged 12-14 are now included in the ongoing National Population Health Survey (NPHS). [52] However, the smoking behaviour of children aged 10-11 has been surveyed nationally only once before on a large scale – in the Smoking Habits of Canadian School Children study of 1978. [22]

The YSS provides detailed national data for children aged 10-11 for the first time ever on:

- aspects of smoking behaviour, such as contemplation and experimentation;
- the use of tobacco in forms other than cigarettes;
- the extent of smoking at home by parents and other persons;
- comprehensive health knowledge and beliefs related to smoking; and
- perceptions of reasons why smokers start.

These topics have been previously covered for the adult population, albeit only recently for most of them, and some topics also appeared in a supplement to the 1994 NPHS.[a] For many other topics, the YSS was the first large-scale survey to provide data for persons *of any age* on:

- future expectations of smoking behaviour;
- *social influences*, such as parental attitudes and the smoking behaviour of teachers and schoolmates;
- *educational/regulatory influences*, such as attitudes toward smoking and pack warnings, recall and credibility of pack warnings, awareness of own brand contents, and perceived and anticipated impact of restrictions at school and at work; and
- *commercial/marketing influences*, such as awareness of and beliefs about tobacco industry sponsorship; purchasing practices, such as ease of access to tobacco products and usual source and amount; and brand recognition, appeal, and loyalty.

For still other topics, the YSS provides detailed national data for the population aged 15-19 for the first time in many years on:

- inhaling, last surveyed in 1981 [26];
- use of tobacco forms other than cigarettes, last surveyed in 1986 [36]; and
- the smoking behaviour of friends, last surveyed in 1990.[41]

Table 1-A
Major Canada-wide Studies of Youth Smoking Other than the YSS

Major Topics	Ages Covered	Year(s)	Sample Size[b] (approx.)	Reference(s)
Type of smoker	15-19+	1965-1994, every 2-3 years	1,000-3,000	14, 20, 23, 26, 30, 36, 37, 41, 46, 47, 49
	8-19 in school	1978	106,000	22
	10-19+	1981	5,900	51
	12-19	1983-1994, erratic	2,400	8
	9, 12, 15	1984-85	33,100	29
	11, 13, 15	1989-90, 1994	5,600	28 (no 1994 report available yet)
Beliefs, knowledge of risks	15-19+	1994, 1995	3,000	16, 17
	8-19 in school	1978	106,000	22
Knowledge of own cigarette contents	12-19+	1994	1,800	46
Social influences	15-19+	1985, 1990	1,000	30, 41

b. Sample size is for the age groups shown in the second column; additional cases for the older population were part of the sample for surveys marked "-19+" under "Ages covered."

a. Results from this supplement have not yet been published.

Table 1-B
Major Provincial and Territorial Sources of Data on Youth Smoking[a]

Province/ Territory	Major Topics	Age or Grades Covered	Year(s)	Agency, Reference
BC	Smoking behaviour, other forms, attempts to quit	Grades 7-12	1992	McCreary Centre[42]
	Type of smoker	Grades 8-12	1987, 1990	B.C. Health[6,9]
MB	Smoking behaviour	Grades 3-12	1985	Manitoba Health[45]
NB	Type of smoker	Grades 7-12	1986, 1989, 1992, 1996	New Brunswick Health[25]
NS	Smoking behaviour, access, prevention, knowledge of effects	Grades 6, 8, 10, 12	1991, 1994	Nova Scotia Health[39]
	Type of smoker	Grades 7, 9, 10, 12	1986, 1991	Commission on Drug Dependency[33]
NT	Smoking behaviour, other forms, social context	Grades 3-12 (age 5-19)	1982, 1987	Health and Welfare Canada and NWT Health[13]
ON	Smoking behaviour, attempts to quit	Grades 7, 9, 11, 13	1977-1995, biennially	Addiction Research Foundation[2]
	Smoking behaviour, attempts to quit, beliefs about health, friends and household members who smoke	Age 12-19	1990	Ontario Health Survey[40]
PE	Smoking behaviour, purchasing, cessation	Grades 7-12	1972, 1976, 1982, 1993	Alcohol & Drug Problems Institute[27]
	Smoking behaviour	Grades 7-12	1990	PEI Health[10]
QC	Smoking behaviour	Age 15-19+	1987, 1993	Santé Québec[31]
SK	Smoking behaviour, access, knowledge of effects	Age 10-19+	1994	Saskatchewan Health[43]
YT	Type of smoker	Age 15-19+	1991	Yukon Bureau of Statistics[54]

a. There are no known surveys in Alberta and Newfoundland.

In addition to the comprehensive description of smoking behaviour and many of its determinants, the YSS is characterized by a large sample (23,800) that permits many variables to be reported by single years of age and/or at the provincial level, two considerations important to use of the findings for monitoring and program planning. Similarly, the large sample, particularly at ages 10-14, is invaluable for isolating behaviours such as experimental smoking that are too rare for statistical reliability in a general population sample such as that of the NPHS.

A review of earlier studies in Canada indicates that the comprehensive topical coverage of the YSS is unparalleled. Only one earlier study, in 1978, has had a larger sample in this important age range, [22] and its topical scope was limited (Table 1-A).

All provinces except Alberta and Newfoundland and both territories have collected data on the prevalence of smoking among their young people (Table 1-B). Seven provinces or territories have data for more than one point in time (British Columbia, New Brunswick, Nova Scotia, Northwest Territories, Ontario, Prince Edward Island, Quebec), but seven have collected no new data since 1993 (Alberta, British Columbia, Manitoba, Newfoundland, Prince Edward Island, Quebec, Yukon), when youth began to smoke more, and most restrict themselves to identifying type of smoker. Only one province (Ontario) routinely monitors attitudes, beliefs, or the social context of smoking.

There have been many other studies of smoking in the youth population over the years, including longitudinal studies based in individual cities [1,7] and cross-sectional surveys in parts of provinces. [5,24] These studies have been important for understanding the phenomenon of tobacco use, including aspects such as initiation of smoking, use of smokeless forms of tobacco, and behaviour among native youth. However, it is inappropriate to apply prevalence rates from these local samples to larger populations.

In other countries, notably the United States and Australia, adolescent smoking is carefully monitored. In the United States, national data have been collected at intervals of 1-3 years since 1974 for age 12 and older (National Household Survey on Drug Abuse), while household and school surveys have also been

frequently conducted, the largest of which is the Monitoring the Future Study series by the University of Michigan.[38] A state-based series initiated in 1988 provides fairly detailed descriptions of present and past smoking behaviour and other risk-taking among youth aged 12-21.[35] Preventing tobacco use among young people was the topic of a recent report of the U.S. Surgeon General.[53] In Australia, the smoking behaviour of adolescents has been tracked since at least 1980 at both the national and state levels. [4]

Uses of the YSS Data

The principal intended uses of the YSS are to plan and monitor tobacco control policies and programs. The survey is especially relevant to the *prevention* goals of the Tobacco Demand Reduction Strategy [19] and the National Strategy to Reduce Tobacco Use [21] and the *cessation* and *protection* goals of these strategies and the *Blueprint to Protect the Health of Canadians* .[15]

In particular, the YSS provides important benchmark data for age 10-11 on behaviour and for age 10-19 on many influences on smoking, as well as useful trend data for age 15-19 on behaviour and some other influences surveyed previously. The thorough coverage of influences means that the survey will yield policy-relevant data on marketing issues, education and promotion, and restrictions on public smoking. Chapters 3-9 of this report discuss some of these implications.

As important as the policy uses are, the YSS should also prove to be a valuable resource for research into youth smoking, especially insights into the natural history of beginning to smoke and the relative impact of a wide variety of influences on decisions to experiment with, initiate, continue, or quit smoking. The large sample is an important feature of the YSS that makes it amenable to statistical analysis.

Overview of YSS Methods

While Chapter 2 describes the survey methods of the YSS in detail, the most salient points are summarized here.

The defining feature of the YSS is the age range of 10-19, and, for the first time in Canada, a combination of methods has been used to ensure that all youth are included, not just those in schools. This is an important innovation, since, as of 1992, the proportion of 16- to 19-year-olds *not in school* ranged from one third to over one half, depending on the province. [48]

To meet the challenge of including all youth aged 10-19, the YSS design incorporated two independent samples and used methods and settings appropriate to younger and older age groups. Children aged 10-14 were surveyed at school and completed individual questionnaires in their classroom, while youth aged 15-19 were surveyed at home by telephone. The sample represents youth in the 10 provinces except those on reserves and armed forces bases. Institutionalized youth aged 10-14 are not covered, but those aged 15-19 in institutions such as group homes or hotels are included. Inmates in correctional institutions are not included, however.

Response rates for the YSS were good – 80% for age 10-14 and 81% for age 15-19 – increasing the likelihood that the sample is representative and also large enough for detailed analysis: approximately 14,000 schoolchildren and 9,500 youth in households. Moreover, the sample was designed so that reliable provincial estimates are available for many variables, an important consideration when the provinces have major responsibility for tobacco control in their populations and complete jurisdiction over activities in schools.

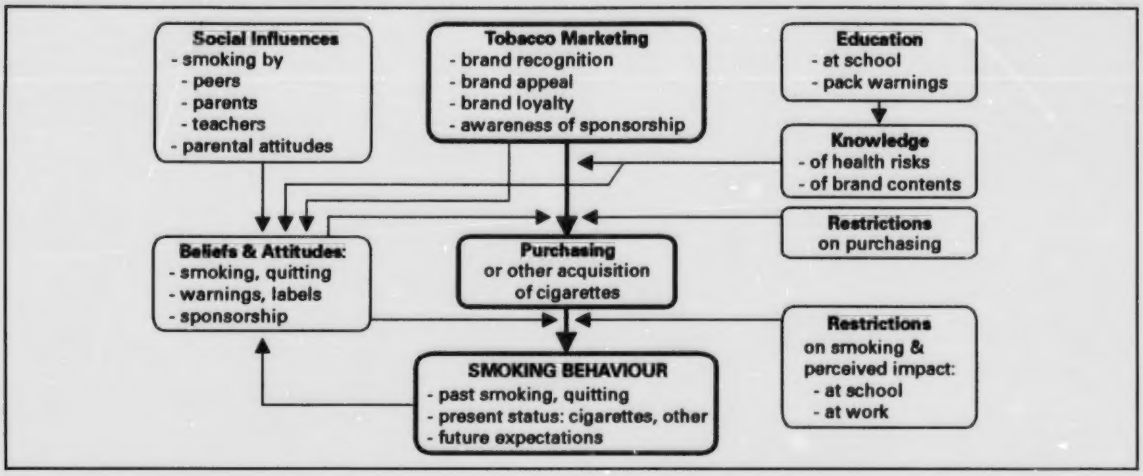
Statistics Canada was responsible for sample design, data collection, and data processing and collaborated with Health Canada on questionnaire design. The school questionnaire and the household interview were very similar; both were developed through a feasibility study, pilot tests, and qualitative testing. Differences between the two versions are noted in later chapters, when relevant to the results being presented.

Organization of the Report

Conceptual Framework of the Analysis

The subject matter of the YSS, described above, is consistent with a *social-cognitive* approach to explaining behaviour, with the important addition of a description of the *policy context*. Figure 1-F summarizes the topics in the YSS and suggests how they might relate to each other in a social-cognitive-policy framework.

Figure 1-F
Smoking Behaviour and Social-Cognitive-Policy Influences Covered in the YSS



Conceptually, the survey begins with a detailed description of *current smoking behaviour* (bold box at bottom of Fig. 1-F), which allows for distinctions among youth who are experimenting with smoking, starting or continuing to smoke, trying to quit, and continuing to abstain. This is supplemented with a less detailed description of *past behaviour* (e.g., age of initiation for smokers and age of any quit attempts) and *future behaviour* (e.g., expectations in one year, experimentation within a month for non-smokers).

Second, purchasing behaviour (or, more accurately, acquisition of cigarettes) is described, since this is behaviour that facilitates smoking and one which may be amenable to control through regulation on where cigarettes may be purchased.

Thirdly, there are social, marketing, and educational influences that might be positive or negative in the decisions to experiment, start, continue, abstain, or quit. The principal social influences covered in the YSS are the attitudes of parents and the modelling behaviour of peers (friends and schoolmates), parents, and teachers. Each of these influences may support abstention or smoking and affect smoking indirectly by shaping the young person's attitudes toward purchasing cigarettes or smoking them once they are available.

The marketing influences are, by nature, intended to stimulate the purchase and acquisition of cigarettes in general and certain brands in particular. Marketing, especially through such means as sponsorships, is also designed to create attitudes favourable to smoking and to tobacco companies. Whether or not such influences are effective, especially whether they influence purchasing behaviour, is tempered by information on the hazards of smoking in general and the contents of particular brands.

This modified social-cognitive model of smoking lacks some of the elements found in more academic versions, such as the Theory of Planned Behaviour. [3] In particular, the YSS did not assess the *value* of peer support, parental attitudes, etc. for the individual, nor the value attached to certain behavioural outcomes, such as feeling part of the group or being physically fit. Considering that these values are beyond the reach of government policy, they were omitted in the YSS in favour of questions more directly related to possible interventions. For similar reasons, the YSS did not probe *perceived behavioural control*,[3] that is, the individual's belief that he or she can achieve a valued outcome – such as remaining smoke-free.

Format of the Report

The structure of this report is based on this conceptual framework, outlined in Figure 1-F.

Following the description of survey methods in Chapter 2, smoking behaviour is described in Chapters 3 and 4. Chapter 3 provides the all-important prevalence data on types of smoker as well as detail on such behaviours as inhaling, use of smokeless forms of

tobacco, age of initiation, and contemplation of future behaviour. Chapter 4 is devoted to the topic of quitting, an important issue even among this young population. The findings relate most closely to the goal of cessation.

Chapters 5 through 9 describe influences on smoking and purchasing cigarettes – factors that may be either positive or negative in the development of the smoker or the lifelong abstainer.

Social influences originating from peers, parents, and teachers are the topic of Chapter 5, while Chapter 6 deals with more cognitive and value-laden influences – beliefs and attitudes about smoking, pack warnings, health issues, sponsorship, and the reasons why smokers start. These two chapters are most relevant to strategies focused on prevention.

Chapter 7 discusses knowledge of health problems and pack warnings, the smoker's awareness of the contents of his or her own brand, and whether he or she learned in school about the dangers of smoking. The results of this chapter are important for those who design and deliver prevention-oriented programs, especially health education messages, as well as those whose focus is on protective legislation and regulation.

Chapter 8 examines many aspects of purchasing that are relevant to tobacco control: usual source of cigarettes, amount usually purchased, the effectiveness of minimum-age requirements, and commercial influences, such as awareness of sponsorship, brand loyalty, and package appeal. Most of these topics are directly relevant to measures set out in the federal government's *Blueprint to Protect the Health of Canadians.*

Regulatory restrictions on smoking are the subject of Chapter 9. It describes the existence of restrictions on smoking in schools and places where teens work and whether these restrictions have had, or would have, the desired impact on public smoking. Data are also presented on knowledge of the minimum age to purchase cigarettes. All of these topics are relevant to the *Blueprint* and to the goals of prevention, protection, and cessation.

Chapter 10 concludes the report with a synthesis of the findings in Chapters 3 through 9.

Format of Chapters 3-9

The seven chapters that present the findings of the YSS have a common format. Each begins with highlights of its results, describes methods specific to the chapter, presents and describes the results with text, tables, and figures, and interprets the results with reference to any relevant methodological issues and data from other times and places. Each chapter concludes with a discussion of the policy implications of the results and outstanding questions that should be pursued through further analysis of the YSS or future surveys.

A common feature of these chapters is that detailed tables follow each chapter, while figures and text tables of a summary nature appear within. As described in Chapter 2, commonly accepted standards are used for qualifying the data appearing in tables and figures and for testing the significance of differences noted in the text.

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Chapter 2

Survey Methods

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Introduction

Survey Design

Sample Design
School Component
Household Component

Data Collection and Response
Schools
Households

Data Processing and Analysis
Sampling Error and Reliability
Suppressed Information
Statistical Testing
Missing Data
Standardization
Principal Variables
Data Quality

References

Introduction

This chapter provides the essential details on the methods of the 1994 Youth Smoking Survey (YSS). As described in Chapter 1, the YSS was unique in Canadian survey history in its combination of school-based and household-based methods; it was also the largest and most comprehensive survey of youth smoking in over 15 years. Thus, to an even greater extent than with other surveys, an understanding of the strengths and limitations of the YSS is essential for appreciating the findings presented in the following chapters.

This chapter describes the principal features of the design, sample, and methods of the YSS that affect all survey topics and are relevant to all the following chapters. Chapters 3-9 also describe definitions and other aspects of methods that are specific to the sections of the survey that they address. We have tried to strike a balance here between the needs of the data user whose main concern is understanding and applying the results and the needs of the researcher who may be more interested in the subtleties of surveying tobacco use in a young population. The reader looking for additional information will find it in the *Youth Smoking Survey, 1994: Microdata User's Guide*.[8]

Survey Design

The target population for the YSS was defined as the 3.88 million people aged 10-19 in Canada. This target population included residents of all 10 provinces not living in institutions or on reserves (with minor exceptions described under Sample Design). Residents of the territories were excluded because of the excessive cost of including them, the greater possibility of sampling overlap with other Statistics Canada surveys, and the unavailability of the Labour Force Survey (LFS) in the Northwest Territories.

In designing the YSS, methodologic and cost considerations had to be addressed. In general, the design had to include data collection methods that were cost-effective and guaranteed at least minimum data quality.

The YSS consisted of two distinct survey samples and data collection methods – a school-based component for children aged 10-14 and a household-based supplement to the LFS for adolescents aged 15-19. While school-based surveys have certain advantages, such an approach would not have yielded a representative sample of older teens, since the proportion of 16- to 19-year-olds not in school in 1992 was 33% in Ontario, 39% in the Atlantic provinces, 45% in the Prairie provinces and British Columbia, and 57% in Quebec.[10]

Thus, two parallel surveys were designed to complement each other. They used nearly identical questionnaires, designed to produce comparable estimates on behaviours and attitudes across the 10-19 year age range. Where the questions differed and results are not comparable, this is noted in the chapters that follow.

The sample sizes required for the two survey components were calculated based on criteria for precision of survey estimates. Each sample had to be sufficiently large to produce reliable estimates (i.e., those with a maximum coefficient of variation [CV] of 16.5% for a minimum proportion of 10%). In other words, it had to be possible to produce percentage estimates, such as the prevalence of current smokers, as small as 10% of an identified population that could be reported without restriction. Reportable estimates (CV less than 16.5%) were also required by Health Canada for each of the following population subgroups:

- ages 10-19 for individual provinces; and
- ages 10-14 for each sex and ages 15-19 for each sex at the national level.

Sample Design

School Component

A sample of children 10-14 years of age was obtained indirectly, by sampling classes from a frame of all public and private schools in Canada based on the 1991-92 school year. The sample frame included all provinces but neither territory. Specifically, a two-stage stratified clustered design (grade by province) was used to select students.

Due to cost and logistical considerations, only classes in grades 5 through 9 were sampled. Thus, a small number of 10- to 14-year-olds enrolled in higher or lower grades were excluded. Also excluded were classes in schools for children with disabilities or those located on military bases. Finally, classes with fewer than 10 students were not sampled. An estimated 8% of the target population was excluded for all of these reasons.[8]

Calculations of the number of schools to be sampled for each province were based on estimated response rates, class size, and number of eligible students (i.e., age 10-14) per class obtained from pilot testing. A total sample of 800 classrooms from 714 schools, with each class averaging 30 students, was estimated for each province. In the first stage of selection, independent samples of schools were selected for each grade, and 16 schools per province were chosen for each of grades 5-9. These independent samples of schools were drawn from the sampling frame on the basis of probability proportional to size of the school (i.e., larger schools had a greater chance of being selected), and it was possible for the same school to be selected for two grades. The same procedures were followed for the smallest province, Prince Edward Island, with the exception that some large schools were guaranteed to be included in the sample.[8]

Within selected schools – the second stage of selection – field staff conducted sampling of individual classes. The interviewer drew up a list of all classes in the desired grade with the assistance of a contact person within the school. The interviewer then chose one class by a process of random selection.

Household Component

A sample of adolescents and young adults aged 15-19 was obtained by using an augmented sample of the Canadian LFS.[8] The LFS uses a multistage stratified probability sampling design, by which geographically defined clusters of private dwellings are selected and then samples of households are selected with a known probability. Provinces are first stratified into economic regions. Economic regions are then divided into cities of 15,000 population or greater, areas lying outside of these cities, and special areas, including military establishments and other distinct areas. Within each of these smaller geographical strata, Primary Sampling Areas (PSAs), consisting of defined geographical areas such as city blocks, are chosen at random. The PSAs are defined by physical boundaries within which field enumerators identify all private dwellings. The final sample is chosen with a known probability from the enumerated lists of dwellings.

The LFS excludes residents of institutions and full-time military personnel but includes civilians living on military bases. Institutions such as hospitals are excluded, but some residential institutions such as half-way houses would be included.

Once selected, households remain in the LFS sample for six consecutive monthly cycles, and each monthly cycle consists of six "rotation groups" (defined according to when they entered the sample). When additional information is obtained from the LFS (such as the YSS Supplement), the information is obtained from one or more of these rotation groups. If a larger sample is required, rotation groups from earlier monthly cycles are added. As a result of this design, residents included in the YSS sample may have been part of the LFS sample 1-5 months previously; however, no household was surveyed for the YSS more than once.

Within selected households, demographic information is obtained for all residents and labour force information is obtained from all residents aged 15 years and older. YSS information was obtained from residents aged 15-19 years, meaning that more than one person per household could be included in the YSS. Proxy responses were not accepted for the YSS component.

Data Collection and Response

As described above, the YSS consisted of two distinct components, a school-based survey for children aged 10-14 and a household-based survey for youth aged 15-19. Field operations for both components were the responsibility of Statistics Canada; data were collected under the federal *Statistics Act*. The sections below describe aspects of data collection unique to the two survey settings.

The specification of questionnaire content and the development of the questionnaires were mainly the responsibility of Health Canada's Office of Tobacco Control. After two parallel questionnaires with questions on a wide range of policy-relevant issues were developed, Statistics Canada contracted with D.R. Harley Consultants Ltd. to conduct pretesting of both instruments. This pretesting used "think-aloud" techniques with 64 children and youth to probe comprehension of the questions. Recommendations from this qualitative testing were used to revise both questionnaires. The final versions appear in Appendix A.

Schools

Surveying in schools represents some special challenges compared to household surveys because of the layers of approval required. Participation at all levels was voluntary, and boards, schools, students, and their parents were all promised strict confidentiality.

Statistics Canada first approached 307 school boards for permission to contact individual schools; 93% granted this permission. Selected schools were then contacted, and only 18 refused to participate. When combined with the 34 classes that had been selected in boards that did not participate, these 52 refusals meant that a total of 6% of selected classes did not take part in the YSS.

The next step was to seek approval from the parents of each of the 17,877 children within the 784 participating classes; 91% of parents gave their approval for their child to participate. About two thirds of these gave written permission, as initially requested, while the balance provided oral consent after a telephone follow-up by the Statistics Canada field staff member.

Questionnaires were completed by students in their regular classrooms in the fall of 1994. Teachers could remain in the class but were asked not to circulate among the students; most left the room during this time. In addition to the questionnaires, students were provided a handout with drawings of cigarette packages with the brand names masked for use with questions on brand recognition. Completion times for the entire questionnaire were in the range of 30-40 minutes. For a variety of reasons, including absence, refusal, or unusable questionnaires, responses were ultimately obtained from 94% of eligible students.

For each student surveyed at school, a parental interview by telephone collected data on household membership, the labour force activity of each parent, and, if employed, their occupation and industry (see Appendix B). Usable questionnaires were obtained from 93% of parents.

Once the parent questionnaires were matched with the questionnaire of their daughter or son, a total of 14,270 valid records was available to represent the population of 1.95 million children aged 10-14. Each respondent thus represents an average of 136.6 other children of his or her age.

Table 2-A
Sample Size and Response for School and Household Components, by Province, YSS, 1994

	School Component		Household Component	
	Number	Percent	Number	Percent
Canada	**14,270**	**80**	**9,491**	**81**
NF	1,476	81	990	86
PE	1,430	82	375	84
NS	1,431	81	944	80
NB	1,430	80	866	77
QC	1,556	77	1,303	90
ON	1,260	71	920	81
MB	1,370	85	941	76
SK	1,360	83	1,099	81
AB	1,516	81	1,030	80
BC	1,441	78	1,023	77

The overall response rate in schools was 80%. By province, this ranges from 71% in Ontario to 85% in Manitoba (Table 2-A).

Typically, one interviewer was responsible for three classes, and there was one supervisor for every 10 interviewers. Staff training consisted of two hours of self-study with the *Interviewer's Manual* and a discussion with the interviewer supervisor.

Households

As described above, youth aged 15-19 were surveyed at home, their households being part of the LFS in mid-1994. Data collection was by telephone, using a paper questionnaire similar to the one administered in the schools (Appendix A). An estimated 15-20 minutes were required for the interview.

Within selected households, attempts were made to interview all persons aged 15-19; proxy interviews were not accepted. Up to five repeat calls were made to reach absent youth, and attempts were made by telephone to trace youth who had moved.

Overall, the response rate was 81% for the household component, for a total of 9,491 completed questionnaires. This sample represents 1.93 million youth aged 15-19 – that is, the typical respondent represents 203.6 of his or her age peers. While higher than for the school component, this average sampling weight is much lower than for the typical national survey – an important feature of the YSS.

Table 2-B
Sampling Error for a Population Estimate of 50%, YSS, 1994

Sample	Number Surveyed	Sampling Error (%)	95% Confidence Limits (%)
Total sample	**23,761**	**±0.6**	**49.4-50.6**
Current smokers aged 15-19 years	2,159	±2.1	47.9-52.1
Beginner smokers aged 15-19 years	668	±3.8	46.2-53.8
Former smokers aged 15-19 years	227	±6.5	43.5-56.5

Participation ranged from 76% in Manitoba to 90% in Quebec (Table 2-A).

The 870 Statistics Canada interviewers, who were experienced with the LFS, prepared for the YSS by studying the manual and conducting a practice interview. One hour was allowed for such preparation, including discussions with the senior interviewer.

In total, the combined sample is based on interviews with 23,761 youth (14,270 from the school component and 9,491 from the household component). As shown in Table 2-1 (at end of chapter), the sample is equally represented by males and females (12,064 and 11,697, respectively), while the number of interviews by province ranges from 1,805 (Prince Edward Island) to 2,859 (Quebec).

Data Processing and Analysis

Information from all questionnaires was processed in a manner to ensure high-quality data and integrity. Data were captured in six regional Statistics Canada offices and checked for valid ranges and appropriate skip patterns for all questions. Sample verification was performed on 10% of the sample and indicated a data entry error rate of 3% or less.

For the household component, all questions were manually examined for valid codes and inappropriate skip patterns. If errors were found, responses were corrected based on an examination of possible flow patterns. Editing software was also employed for the household data.

Only a few topics used open-ended questions that required coding: cigarette brand usually smoked, cigarette brand liked best, health problems, health warning messages, and sponsorship of sporting and cultural events. Details of coding procedures are described in the *Microdata User's Guide*.[8]

The central objective of a probability survey such as the YSS is to use the information derived from the sample of interviewed respondents to estimate various characteristics in the total population. In the YSS case, the sample of 23,761 is used to provide estimates on the population of 3.88 million youth. Thus, each respondent in the YSS represents about 163 Canadian youth aged 10-19 years.

Recall that the sample design was allocated so that each province interviewed a reasonably large sample in order to provide precise estimates. However, since provincial populations vary so widely in size, allocating the sample this way requires that the data be weighted to ensure that characteristics of surveyed youth accurately represent the characteristics of all Canadian youth. Thus, all data in this report (estimated populations, percentages, and means) are weighted in order to provide the most accurate picture possible of smoking-related attitudes, beliefs, and behaviours among the 3.88 million Canadians aged 10-19.

Weights are attached to each respondent in the data file to ensure his or her appropriate representation and are the product of several factors. Weights for the household component are based on seven factors and for the school component on five factors. These weighting factors represent three broad types of adjustments: the probability of selection; non-response adjustments, used to adjust for any loss of precision due to non-participation; and population readjustments, used to ensure population representation according to province, age, and sex.[8]

Sampling Error and Reliability

By definition, all sample survey estimates have some degree of sampling error attached to them, since not all members of the total population were surveyed. Precision implies that an estimate obtained from another survey conducted in the same fashion at the same time would be roughly equal to the first estimate obtained. The magnitude of this sampling error is, in part, a function of sample size: a large sample typically has smaller sampling error (i.e., higher precision) than would a small sample. As seen in Table 2-B, if we estimate the prevalence of a particular characteristic to be 50% of the population being studied, the sampling error (which could also be expressed as a 95% confidence interval) for the total sample of all youth is

quite small, at ±0.6%. Thus, we are confident that the true population percentage ranges between 49.4% and 50.6%. However, this precision is significantly reduced when percentages are based on smaller subgroups. For example, the same percentage of 50% for former smokers aged 15-19 years would have a sampling error of ±6.5 percentage points, yielding a range of 43.5-56.5%. Thus, because estimated proportions can have differential error, it is important for survey reports to qualify the reliability of estimates. The reader is reminded to interpret differences in percentages for small subgroups of the whole YSS sample with caution, as these differences may be attributed to random error alone.

One common means of comparing the precision of different estimates based on different sample sizes and different types of measures is the C V. The CV is conveniently expressed as a percentage and is obtained by dividing the standard error of the estimate by the estimate itself. In this report, standard Statistics Canada guidelines are used in determining whether estimates are reliable or whether they are too unstable to release. The release criteria are based on the size of the CV as follows:

- if the CV is greater than 33.3% (or the sample size on which the estimate is based is less than 30), the tabulated data are not releasable (indicated by the symbol #);
- if the CV is between 16.5% and 33.3%, the data are released with qualification, meaning that the results should be interpreted with caution (indicated by an asterisk, *); and
- if the CV is less than 16.5%, the data are shown without qualification.

Suppressed Information

In addition to suppression for statistical purposes, personal identifiers and highly sensitive information are also suppressed. Information that could be used to identify individuals who participated in the survey (such as name or name of the school) are not reported here, nor is this information distributed with the public use data files. Other information deemed by Statistics Canada to be highly sensitive is the identification of tobacco brand names and the names of tobacco corporations involved in sponsorship of sports and cultural events. In both survey components, some information was obtained that identified cigarette brand names or the names of corporations with a cigarette brand name as part of the corporation name. Examples are the recall ofcorporate sponsorships, recognition of cigarette packages by brand name, and the brands of cigarettes usually smoked and preferred. In all cases, the actual brand or corporation names used in the questionnaires have been replaced by an arbitrary letter code (e.g., Brand A, Brand B).

Readers should also be aware that estimates provided in this report are based on a data file with full access to details that may not be available on the public use microdata file. As a result of subtle differences between this data file and the public use data file and minor differences in analysis such as rounding error, estimates shown may vary slightly from those based on the public use file.

Statistical Testing

All differences described in the text are significant at the 5% level ($p < 0.05$) or better. Because of the large sample size, many differences are significant at a higher level, but we also have exercised some judgement in reporting those of practical importance. Thus, not all statistically significant differences are mentioned in the text.

Calculating precise statistical tests between percentages is not straightforward with complex samples such as the YSS. Indeed, because of the sampling design, statistical tests based on simple random sampling theory cannot be used. A measure used to estimate the impact of complex sampling on estimates of variance is the *design effect*, which crudely reflects the difference in error between a simple random sample and a complex sample design. A design effect of 1.0 indicates that error estimates based on a complex design are equivalent to those based on a simple random sample, whereas a design effect of 2.0 indicates that the complex sample design underestimates the error by a factor of two. For the YSS, the design effect was estimated by Statistics Canada to be 5.6 for the total combined sample of 10- to 19-year-olds, 5.47 for the household component, and 4.96 for the school component.

To simplify statistical testing between percentages, "look-up" tables were developed to incorporate the sample design as described above. Because of the two distinct methods of data collection used by the YSS, corresponding to different age groups, three look-up tables were used for testing significance, one for each of the three groups: age 10-14 (Table 2-2), age 15-19 (Table 2-3), and age 10-19 (Table 2-4). These tables are unique to the YSS and cannot be used for any other survey, nor can they be used for testing differences within a province.

Table 2-C
Smoking Status Measures, YSS, 1994

Three-category		Six-category	
Category	Description	Category	Description
Current	Has smoked at least 100 cigarettes in lifetime and has smoked during the past 30 days	Current daily	Current smoker who has smoked at least one cigarette per day for each of the 30 days preceding the survey
		Current non-daily	Current smoker who has smoked at least one cigarette during the past 30 days but but has not smoked every day
Former	Has smoked 100 or more cigarettes in lifetime and has not smoked during the past 30 days	Former	Has smoked 100 or more cigarettes in lifetime and has not smoked during the past 30 days
Non-smoker	Has smoked fewer than 100 cigarettes in lifetime ("never smokers" is a typical category for adult smokers, but we feel this terminology does not accommodate the changing quality of smoking among youth)[a]	Beginner	Non-smoker who has smoked between 1 and 99 cigarettes in lifetime and has smoked in the past 30 days
		Past experi-menter	Non-smoker who has smoked between 1 and 99 cigarettes in lifetime but has not smoked in last 30 days
		Lifetime abstainer	Non-smoker who has smoked less than one whole cigarette in lifetime

a. Note, however, that Chapters 6 and 7 use the term "never smoker" to refer to past experimenters plus lifetime abstainers.

Missing Data

Two other issues regarding the YSS analysis are important to mention. First, like all surveys, respondents occasionally refuse or are unable to provide a valid response to questions. Examples include "not stated" and in some cases "don't know." Levels of this non-response for individual questions are very low in general – about 1-2% of the sample. Unless such non-response was greater than 10%, it is not shown; instead, it is allocated (imputed) to the other categories proportionally. But where "don't know" is an informative response, such as with knowledge questions, this response option is reported in the tables and figures.

Standardization

The second issue regarding the analysis of the YSS data is the absence of standardization or adjustments for related factors. All estimates provided in this report are "unadjusted" for other factors that may influence the size of estimates. Most notably, data have not been standardized for age or sex. As noted in the Results sections, sex differences are generally quite small. Whenever possible, age-specific data are presented, using at least two age groups (10-14, 15-19) with another variable, and more age groups when the sample size permits. As well, the relationships presented in this report ignore the possible influences of other factors. For example, in Chapter 3, we found unique age-related increases in smoking among francophone youth and youth from Quebec. It is beyond the scope of this report to determine whether it is a cultural or regional phenomenon that underscores these two relationships. Clearly, this is a matter for future research.

Principal Variables

Several smoking measures are used frequently in various chapters. By far the most common of these is smoking status, of which two variants are employed (Table 2-C). The first separates respondents into three categories – *current smokers* (those who have smoked at least 100 cigarettes in their lifetime and smoked during the 30 days preceding the survey), *former smokers* (those who have smoked at least 100 cigarettes in their lifetime but did not smoke during the 30 days before the survey), and *non-smokers* (those who have smoked fewer than 100 cigarettes in their lifetime). These definitions are those recommended in a 1994 Canadian workshop on the subject.[5] The important refinement over commonly accepted practice is the specification of a minimum number of cigarettes in order to be classified as a smoker.

When appropriate and feasible, a six-category smoking status measure was also employed. In this measure, current smokers are further divided between *daily smokers* (those who have smoked at least one cigarette per day for each of the 30 days preceding the survey) and *non-daily smokers* (those who have smoked at least one cigarette during the 30 days prior to the survey but have not smoked every day). In addition, non-smokers are further divided into three groups: *beginners* (those who have smoked between 1 and 99 cigarettes in their lifetime and have smoked during the month preceding the survey), *past experimenters* (those who have smoked from 1 to 99 cigarettes in

their lifetime but have not smoked during the month before the survey), and *lifetime abstainers* (those who have never smoked one whole cigarette in their lifetime). One might also divide former smokers into former daily and former non-daily smokers, but the sample size in this survey does not allow for such distinctions.

Two other smoking measures are frequently used in this report: the amount smoked (two versions) and the age of first smoking. Respondents who smoked during the week preceding the survey were asked the following: "On those days that you smoked, how many cigarettes did you usually smoke?" Six categories were presented: <6, 6-10, 11-15, 16-20, 21-25, and 26+ (SS18, HH10).[a] In addition, smokers were asked, "Thinking back over the past 7 days, starting with yesterday, how many cigarettes did you smoke each day?" (SS19, HH11). The actual total number of cigarettes smoked was coded, and data were presented as an average (mean).

To measure initiation into smoking, smokers who had smoked a whole cigarette were asked the following: "How old were you when you smoked your first whole cigarette?" (SS13, HH5). Actual reported age was coded, and average ages are reported.

Smoking behaviour and other variables in this report are presented according to various demographic and social factors (Table 2-D). The first four of these are standard demographic factors: age, sex, province, and language. As indicated in Table 2-D, three different age groupings – 10-category, four-category, and two-category – are used. Generally, the report presents the most detailed age groupings possible given the need to present releasable figures as explained above. Respondents' sex and province are also reported in several chapters. Language of respondent, defined as the language spoken most often at home, is presented in three categories: English, French, other.

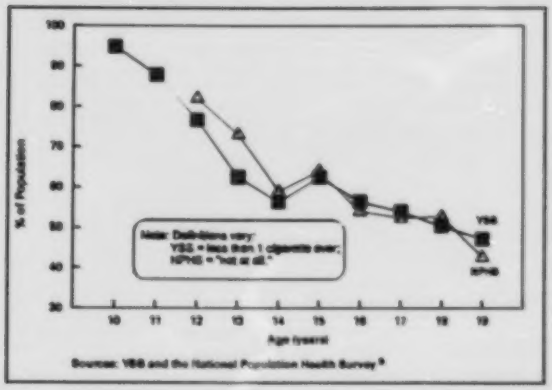
Table 2-D
Measures of Standard Classification Variables, YSS, 1994

Variable	Description	School Sample (Q#)	Labour Force Survey Sample (Q#)
Age	Age as of Sept. 1, 1994	Q1	Q6
	Single years (10-19)		
	Four categories (10-12; 13-14; 15-17; 18-19)		
	Two categories (10-14; 15-19)		
Sex	(Male; female)	Q2	
Province	(10 provinces)		
Language	What language do you speak most often at home?	Q3 (MD = 0.3%)	Q79 (MD = 0.2%)
	(English; French; Other)		
Academic performance	How are you doing in school compared to other students your age?	Q55 (MD = 1.2%)	Q64 (MD = 0.3%) Among those currently attending school
	(better than average; average; below average)		
Hours worked	How many hours do you usually work per week?	Q63 (MD = 5.0%) Among those at a paid job	Q73 (MD = 5.0%) Among those at a paid job
	(1-9; 10+)		

Note: MD = missing data.

a. This notation, used throughout the Technical Report, refers to Question 18 on the School Survey (SS) and Question 10 on the Household Survey (HH), as found in Appendix A.

Figure 2-A
Lifetime Abstainers in Two National Surveys, by Age, Canada, 1994



School performance and work status are examined in various chapters in this report. Those attending school were asked, "How are you doing in school compared to other students your age?" (SS55, HH64). Responses offered were "better than average," "average," or "below average." As well, those currently working part-time or full-time were asked how many hours they usually worked per week (SS63, HH73). Responses were categorized as 1-9 hours or 10 or more hours weekly. Other variables employed in this study are discussed in their respective chapters.

Data Quality

The validity of self-reported smoking is often questioned because of the widespread belief that smokers underreport the amount smoked [11] or, in the case of youth, deny smoking completely. [3,6] The underlying reason for this expectation is based on the argument that people tend to respond to survey questions in a socially desirable direction. [2] Since our wider social norms do not view smoking as a desirable behaviour, especially for adolescents, a social desirability bias would result in underestimates of smoking behaviour.

A recent meta-analysis based on 26 validity studies revealed that self-reports of smoking are generally accurate compared to biochemical measures. [7] Although this study also found that student surveys showed lower validity than biochemical tests, validity was still acceptable.

For the school component, the following safeguards were implemented to ensure validity: (a) administrators stressed to students the confidentiality of their responses, (b) classroom administration was used to promote a condition of anonymity that is critical to valid reporting, [1,4] and (c) teachers did not circulate among students during completion of the questionnaires. Consequently, student responses would not be influenced by the presence of teachers or parents. For the household component, validity was secured (a) by confidentiality provided by the *Statistics Act*, (b) by not allowing proxy reporting on another person's behaviour, and (c) by up to five callbacks and attempts to trace selected respondents to increase the representativeness of the sample.

Although these safeguards should increase our confidence in the data, they cannot ensure the elimination of all threats to validity (e.g., some youth might not perceive a condition of anonymity, and some might have been influenced by the presence of parents during the telephone interview). Still, given the procedures employed in the YSS and the research literature on the validity of self-reports on smoking in general, any influences that would bias estimates would likely be small. Furthermore, given the theoretical argument about social desirability and the results of other studies on youth, the direction of any potential bias would be in the direction of underreporting. We expect such a small bias of underreporting to be concentrated among the youngest age group and/or beginning smokers.

In summary, self-reports on smoking behaviour show reasonable validity, and safeguards employed in both components of the YSS should enhance the validity of responses. Still, we must accept that small biases may occur in the direction of underreporting; consequently, the estimates of prevalence presented in this report should be seen as lower bounds of the true smoking prevalence. The validity of other measures should be even less problematic than the validity of responses regarding smoking behaviour, because social norms are not as established in regards to attitudes, beliefs, or knowledge.

Another approach to establish confidence in survey data is by external validation. In 1994, another national survey, the National Population Health Survey (NPHS),[9] asked questions about smoking. Like many surveys, important differences exist between the YSS and the NPHS, including a differing age range (10-19 years in the YSS and 12-19 years in the NPHS), survey methodology, question wording, and smoking definitions (the YSS classified lifetime abstainers as those smoking less than one cigarette ever, whereas the NPHS classified lifetime abstainers as those who responded "not at all").

Given that both surveys are nationally representative and their classification of smoking is somewhat similar, we should expect to find similar results between the two surveys. Figure 2-A shows this to be the case. Indeed, the relationship between age and lifetime abstention is remarkably similar between the two surveys. Even the increase in lifetime abstainers at age 15 is shared by both surveys. This pattern is important, because, without concurrent information provided by the NPHS, we might be inclined to attribute the irregularity between ages 14 and 15 to differences between the school and household methods used in the YSS. The sample size of the NPHS does not permit sex-specific analysis for single years of age. However, analysis of two-year age groups for males and females is similarly reassuring. Thus, the smoking comparison between the YSS and the NPHS shows remarkable similarities between both surveys and serves to increase our confidence in the validity of the YSS data.

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Table 2-1
Survey Respondents, by Sex, Age, and Province, YSS, 1994

	School	Household	Total
Total	**14,270**	**9,491**	**23,761**
Sex			
Male	7,210	4,854	12,064
Female	7,060	4,637	11,697
Age			
10-12	8,781	–	8,781
13-14	5,489	–	5,489
15-17	–	6,217	6,217
18-19	–	3,274	3,274
Province			
Newfoundland	1,476	990	2,466
Prince Edward Island	1,430	375	1,805
Nova Scotia	1,431	944	2,375
New Brunswick	1,430	866	2,296
Quebec	1,556	1,303	2,859
Ontario	1,260	920	2,180
Manitoba	1,370	941	2,311
Saskatchewan	1,360	1,099	2,459
Alberta	1,516	1,030	2,546
British Columbia	1,441	1,023	2,464

Table 2-2
Approximate Difference Required for Significance (p< 0.05)
for Comparing Two Percentages in Canada, School Component, Age 10-14

Numerator of Percentage ('000)	Estimated Percentage in Smaller of Two Groups Being Compared															
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	60.0%	70.0%	80.0%	90.0%
1.00	0.33	3.26	6.50	15.98	31.12	45.36	58.72	71.00	82.32	92.54	101.60	116.00	124.56	125.72	117.44	93.24
2.00	–	2.31	4.59	11.30	22.00	32.10	41.52	50.20	58.20	65.52	71.84	82.00	88.08	89.04	82.88	65.96
3.00	–	1.88	3.75	9.22	17.96	26.22	33.84	41.00	47.52	53.48	58.72	67.00	71.76	72.52	67.84	54.00
4.00	–	1.63	3.25	8.00	15.56	22.68	29.36	35.50	41.16	46.34	50.88	58.00	62.16	63.00	58.56	46.80
5.00	–	1.46	2.90	7.14	13.92	20.28	26.24	31.80	36.84	41.44	45.44	51.80	55.68	56.28	52.48	41.76
6.00	–	1.33	2.65	6.52	12.72	18.54	23.92	29.00	33.60	37.80	41.44	47.40	50.88	51.24	48.00	38.16
7.00	–	1.23	2.46	6.04	11.76	17.16	22.16	26.80	31.08	35.00	38.40	43.80	47.04	47.60	44.48	35.28
8.00	–	1.15	2.30	5.66	11.00	16.02	20.72	25.10	29.16	32.76	36.00	41.00	43.92	44.52	41.60	33.12
9.00	–	1.09	2.17	5.32	10.36	15.12	19.60	23.70	27.48	30.80	33.92	38.60	41.52	42.00	39.04	30.96
10.00	–	1.03	2.06	5.06	9.84	14.34	18.56	22.50	26.04	29.26	32.16	36.60	39.36	39.76	37.12	29.52
11.00	–	0.98	1.96	4.82	9.40	13.68	17.68	21.40	24.84	27.86	30.72	35.00	37.44	37.80	35.52	28.08
12.00	–	0.94	1.87	4.62	9.00	13.08	16.96	20.50	23.76	26.74	29.28	33.40	36.00	36.40	33.92	27.00
13.00	–	0.90	1.80	4.44	8.64	12.60	16.24	19.70	22.80	25.62	28.16	32.20	34.56	35.00	32.64	25.92
14.00	–	0.87	1.74	4.28	8.32	12.12	15.68	19.00	21.96	24.78	27.20	31.00	33.36	33.60	31.36	24.84
15.00	–	0.84	1.68	4.12	8.04	11.70	15.12	18.30	21.24	23.94	26.24	30.00	32.16	32.48	30.40	24.12
16.00	–	0.82	1.62	4.00	7.80	11.34	14.64	17.80	20.64	23.10	25.44	29.00	31.20	31.36	29.44	23.40
17.00	–	0.79	1.58	3.88	7.56	10.98	14.24	17.20	19.92	22.40	24.64	28.20	30.24	30.52	28.48	22.68
18.00	–	0.77	1.53	3.76	7.32	10.68	13.84	16.70	19.44	21.84	24.00	27.40	29.28	29.68	27.52	21.96
19.00	–	0.75	1.49	3.66	7.12	10.38	13.44	16.30	18.84	21.28	23.36	26.80	28.56	28.84	26.88	21.24
20.00	–	–	1.46	3.58	6.96	10.14	13.12	15.90	18.36	20.72	22.72	26.00	27.84	28.00	26.24	20.88
21.00	–	–	1.42	3.48	6.80	9.90	12.80	15.50	18.00	20.16	22.24	25.40	27.12	27.44	25.60	20.52
22.00	–	–	1.38	3.40	6.64	9.66	12.48	15.10	17.52	19.74	21.60	24.80	26.64	26.88	24.96	19.80
23.00	–	–	1.35	3.34	6.48	9.48	12.24	14.80	17.16	19.32	21.12	24.20	25.92	26.32	24.32	19.44
24.00	–	–	1.33	3.26	6.36	9.24	12.00	14.50	16.80	18.90	20.80	23.80	25.44	25.76	24.00	19.08
25.00	–	–	1.30	3.20	6.24	9.06	11.76	14.20	16.44	18.48	20.32	23.20	24.96	25.20	23.36	18.72
30.00	–	–	1.18	2.92	5.68	8.28	10.72	13.00	15.00	16.94	18.56	21.20	22.80	22.96	21.44	16.92
35.00	–	–	1.10	2.70	5.28	7.68	9.92	12.00	13.92	15.68	17.12	19.60	21.12	21.28	19.84	15.84
40.00	–	–	–	2.52	4.92	7.20	9.28	11.20	12.96	14.70	16.00	18.40	19.68	19.88	18.56	14.76
45.00	–	–	–	2.38	4.64	6.78	8.72	10.60	12.24	13.86	15.20	17.20	18.48	18.76	17.60	14.04
50.00	–	–	–	2.26	4.40	6.42	8.32	10.00	11.64	13.16	14.40	16.40	17.52	17.92	16.64	13.32
55.00	–	–	–	2.16	4.20	6.12	7.92	9.60	11.16	12.46	13.76	15.60	16.80	17.08	15.68	12.60
60.00	–	–	–	2.06	4.00	5.88	7.60	9.20	10.68	11.90	13.12	15.00	16.08	16.24	15.04	11.88
65.00	–	–	–	1.98	3.88	5.64	7.28	8.80	10.20	11.48	12.64	14.40	15.36	15.68	14.40	11.52
70.00	–	–	–	1.92	3.72	5.40	7.04	8.50	9.84	11.06	12.16	13.80	14.88	15.12	14.08	11.16
75.00	–	–	–	1.84	3.60	5.22	6.80	8.20	9.48	10.64	11.68	13.40	14.40	14.56	13.44	10.80
80.00	–	–	–	1.78	3.48	5.10	6.56	7.90	9.24	10.36	11.36	13.00	13.92	14.00	13.12	10.44
85.00	–	–	–	1.74	3.36	4.92	6.40	7.70	8.88	10.08	11.04	12.60	13.44	13.72	12.80	10.08
90.00	–	–	–	1.68	3.28	4.80	6.16	7.50	8.64	9.80	10.72	12.20	13.20	13.16	12.48	9.72
95.00	–	–	–	1.64	3.20	4.68	6.00	7.30	8.40	9.52	10.40	11.80	12.72	12.88	12.16	9.72
100.00	–	–	–	–	3.12	4.56	5.84	7.10	8.28	9.24	10.24	11.60	12.48	12.60	11.84	9.36
125.00	–	–	–	–	2.80	4.08	5.28	6.40	7.32	8.26	9.12	10.40	11.04	11.20	10.56	8.28
150.00	–	–	–	–	2.56	3.72	4.80	5.90	6.72	7.56	8.32	9.40	10.08	10.36	9.60	7.56
200.00	–	–	–	–	–	3.18	4.16	5.00	5.88	6.58	7.20	8.20	8.88	8.96	8.32	6.48
250.00	–	–	–	–	–	2.88	3.68	4.50	5.16	5.88	6.40	7.40	7.92	7.84	7.36	5.76
300.00	–	–	–	–	–	–	3.36	4.10	4.80	5.32	5.92	6.60	7.20	7.28	6.72	5.40
350.00	–	–	–	–	–	–	3.12	3.80	4.44	4.90	5.44	6.20	6.72	6.72	6.40	5.04
400.00	–	–	–	–	–	–	–	3.60	4.08	4.62	5.12	5.80	6.24	6.16	5.76	4.68
450.00	–	–	–	–	–	–	–	3.30	3.84	4.34	4.80	5.40	5.76	5.88	5.44	4.32
500.00	–	–	–	–	–	–	–	–	3.72	4.20	4.48	5.20	5.52	5.60	5.12	4.32
750.00	–	–	–	–	–	–	–	–	–	–	3.68	4.20	4.56	4.48	4.16	3.24
1,000.00	–	–	–	–	–	–	–	–	–	–	–	–	3.84	3.92	3.84	2.88
1,500.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.88	2.52

Table 2-3
Approximate Difference Required for Significance ($p < 0.05$)
for Comparing Two Percentages in Canada, Household Component, Age 15-19

Numerator of Percentage ('000)	Estimated Percentage in Smaller of Two Groups Being Compared															
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	60.0%	70.0%	80.0%	90.0%
1.00	0.42	4.19	8.34	20.52	39.96	58.20	75.28	91.20	105.72	118.86	130.40	148.80	159.84	161.56	150.72	119.88
2.00	–	2.96	5.90	14.50	28.24	41.16	53.28	64.50	74.76	84.00	92.32	105.20	113.04	114.24	106.56	84.60
3.00	–	2.42	4.82	11.84	23.08	33.60	43.52	52.60	60.96	68.60	75.36	86.00	92.16	93.24	87.04	69.12
4.00	–	2.10	4.17	10.26	19.96	29.10	37.68	45.60	52.80	59.36	65.28	74.40	79.92	80.64	75.20	59.76
5.00	–	1.87	3.73	9.18	17.88	26.04	33.68	40.80	47.28	53.20	58.40	66.60	71.52	72.24	67.52	53.64
6.00	–	1.71	3.40	8.38	16.32	23.76	30.72	37.20	43.20	48.44	53.28	60.80	65.28	65.80	61.44	48.96
7.00	–	1.58	3.15	7.76	15.08	22.02	28.48	34.50	39.96	44.94	49.28	56.20	60.48	61.04	56.96	45.36
8.00	–	1.48	2.94	7.26	14.12	20.58	26.64	32.20	37.32	42.00	46.08	52.60	56.40	57.12	53.12	42.48
9.00	–	1.40	2.78	6.84	13.32	19.38	25.12	30.40	35.28	39.62	43.52	49.60	53.28	53.76	50.24	39.96
10.00	–	1.32	2.64	6.48	12.64	18.42	23.84	28.80	33.36	37.52	41.28	47.00	50.64	50.96	47.68	37.80
11.00	–	1.26	2.51	6.18	12.04	17.58	22.72	27.50	31.92	35.84	39.36	44.80	48.24	48.72	45.44	36.00
12.00	–	1.21	2.41	5.92	11.52	16.80	21.76	26.30	30.48	34.30	37.60	43.00	46.08	46.48	43.52	34.56
13.00	–	1.16	2.31	5.70	11.08	16.14	20.88	25.30	29.28	32.90	36.16	41.20	44.40	44.80	41.92	33.12
14.00	–	1.12	2.22	5.48	10.68	15.54	20.16	24.40	28.20	31.78	34.88	39.80	42.72	43.12	40.32	32.04
15.00	–	1.08	2.15	5.30	10.32	15.06	19.44	23.50	27.24	30.66	33.76	38.40	41.28	41.72	39.04	30.96
16.00	–	1.05	2.09	5.12	10.00	14.58	18.80	22.80	26.40	29.68	32.64	37.20	39.84	40.32	37.76	29.88
17.00	–	1.02	2.02	4.98	9.68	14.10	18.24	22.10	25.68	28.84	31.68	36.20	38.64	39.20	36.48	29.16
18.00	–	0.99	1.97	4.84	9.40	13.74	17.76	21.50	24.96	28.00	30.72	35.00	37.68	38.08	35.52	28.08
19.00	–	0.96	1.91	4.70	9.16	13.38	17.28	20.90	24.24	27.30	29.92	34.20	36.72	36.96	34.56	27.36
20.00	–	–	1.86	4.58	8.92	13.02	16.88	20.40	23.64	26.60	29.12	33.20	35.76	36.12	33.60	26.64
21.00	–	–	1.82	4.48	8.72	12.72	16.40	19.90	23.04	25.90	28.48	32.40	34.80	35.28	32.96	26.28
22.00	–	–	1.78	4.38	8.52	12.42	16.08	19.40	22.56	25.34	27.84	31.80	34.08	34.44	32.00	25.56
23.00	–	–	1.74	4.28	8.32	12.12	15.68	19.00	22.08	24.78	27.20	31.00	33.36	33.60	31.36	24.84
24.00	–	–	1.70	4.18	8.16	11.88	15.36	18.60	21.60	24.22	26.56	30.40	32.64	33.04	30.72	24.48
25.00	–	–	1.66	4.10	8.00	11.64	15.04	18.20	21.12	23.80	26.08	29.80	31.92	32.20	30.08	24.12
30.00	–	–	1.52	3.74	7.28	10.62	13.76	16.60	19.32	21.70	23.84	27.20	29.28	29.40	27.52	21.96
35.00	–	–	1.41	3.46	6.76	9.84	12.72	15.40	17.88	20.02	22.08	25.20	27.12	27.16	25.60	20.16
40.00	–	–	–	3.24	6.32	9.18	11.92	14.40	16.68	18.76	20.64	23.60	25.20	25.48	23.68	19.08
45.00	–	–	–	3.06	5.96	8.70	11.20	13.60	15.72	17.78	19.52	22.20	23.76	24.08	22.40	18.00
50.00	–	–	–	2.90	5.64	8.22	10.64	12.90	15.00	16.80	18.40	21.00	22.56	22.96	21.44	16.92
55.00	–	–	–	2.76	5.40	7.86	10.16	12.30	14.28	15.96	17.60	20.00	21.60	21.84	20.16	16.20
60.00	–	–	–	2.64	5.16	7.50	9.76	11.80	13.68	15.40	16.80	19.20	20.64	20.72	19.52	15.48
65.00	–	–	–	2.54	4.96	7.20	9.36	11.30	13.08	14.70	16.16	18.40	19.92	20.16	18.56	14.76
70.00	–	–	–	2.46	4.76	6.96	9.04	10.90	12.60	14.14	15.52	17.80	19.20	19.32	17.92	14.40
75.00	–	–	–	2.36	4.60	6.72	8.72	10.50	12.24	13.72	15.04	17.20	18.48	18.76	17.28	13.68
80.00	–	–	–	2.30	4.48	6.48	8.40	10.20	11.76	13.30	14.56	16.60	17.76	17.92	16.96	13.32
85.00	–	–	–	2.22	4.32	6.30	8.16	9.90	11.52	12.88	14.08	16.20	17.28	17.64	16.32	12.96
90.00	–	–	–	2.16	4.20	6.12	7.92	9.60	11.16	12.46	13.76	15.60	16.80	17.08	16.00	12.60
95.00	–	–	–	2.10	4.08	6.00	7.76	9.40	10.80	12.18	13.44	15.20	16.32	16.52	15.36	12.24
100.00	–	–	–	–	4.00	5.82	7.52	9.10	10.56	11.90	13.12	14.80	16.08	16.24	15.04	11.88
125.00	–	–	–	–	3.56	5.22	6.72	8.20	9.48	10.64	11.68	13.40	14.40	14.56	13.44	10.80
150.00	–	–	–	–	3.28	4.74	6.16	7.40	8.64	9.66	10.72	12.20	12.96	13.16	12.16	9.72
200.00	–	–	–	–	–	4.14	5.36	6.40	7.44	8.40	9.28	10.60	11.28	11.48	10.56	8.64
250.00	–	–	–	–	–	3.66	4.80	5.80	6.72	7.56	8.32	9.40	10.08	10.08	9.60	7.56
300.00	–	–	–	–	–	–	4.32	5.30	6.12	6.86	7.52	8.60	9.12	9.24	8.64	6.84
350.00	–	–	–	–	–	–	4.00	4.90	5.64	6.30	7.04	8.00	8.64	8.68	8.00	6.48
400.00	–	–	–	–	–	–	–	4.60	5.28	5.88	6.56	7.40	7.92	8.12	7.68	6.12
450.00	–	–	–	–	–	–	–	4.30	5.04	5.60	6.08	7.00	7.44	7.56	7.04	5.76
500.00	–	–	–	–	–	–	–	–	4.68	5.32	5.76	6.60	7.20	7.28	6.72	5.40
750.00	–	–	–	–	–	–	–	–	–	–	4.80	5.40	5.76	5.88	5.44	4.32
1,000.00	–	–	–	–	–	–	–	–	–	–	–	–	5.04	5.04	4.80	3.96
1,500.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.84	3.24

Table 2-4
Approximate Difference Required for Significance (p< 0.05)
for Comparing Two Percentages in Canada, School and Household Components, Age 10-19

Numerator of Percentage ('000)	Estimated Percentage in Smaller of Two Groups Being Compared															
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	60.0%	70.0%	80.0%	90.0%
1.00	0.38	3.80	7.56	18.60	36.20	52.80	68.32	82.60	95.76	107.66	118.24	135.00	144.96	146.44	136.64	108.72
2.00	0.27	2.68	5.34	13.16	25.60	37.32	48.32	58.40	67.80	76.16	83.68	95.40	102.48	103.60	96.64	76.68
3.00	0.22	2.19	4.36	10.74	20.92	30.48	39.44	47.70	55.32	62.16	68.32	78.00	83.52	84.56	78.72	62.64
4.00	–	1.90	3.78	9.30	18.12	26.40	34.16	41.30	47.88	53.90	59.20	67.40	72.48	73.08	68.16	54.36
5.00	–	1.70	3.38	8.32	16.20	23.58	30.56	37.00	42.84	48.16	52.96	60.40	64.80	65.52	61.12	48.60
6.00	–	1.55	3.09	7.60	14.80	21.54	27.84	33.70	39.12	43.96	48.32	55.00	59.04	59.64	55.68	44.28
7.00	–	1.44	2.86	7.04	13.68	19.98	25.84	31.20	36.24	40.74	44.64	51.00	54.72	55.44	51.52	41.04
8.00	–	1.34	2.67	6.58	12.80	18.66	24.16	29.20	33.84	38.08	41.76	47.80	51.12	51.80	48.32	38.52
9.00	–	1.27	2.52	6.20	12.08	17.58	22.80	27.50	31.92	35.84	39.36	45.00	48.24	48.72	45.44	36.36
10.00	–	1.20	2.39	5.88	11.44	16.68	21.60	26.10	30.24	34.02	37.44	42.60	45.84	46.20	43.20	34.20
11.00	–	1.14	2.28	5.60	10.92	15.90	20.56	24.90	28.92	32.48	35.68	40.60	43.68	44.24	41.28	32.76
12.00	–	1.10	2.18	5.38	10.44	15.24	19.68	23.90	27.60	31.08	34.08	39.00	41.76	42.28	39.36	31.32
13.00	–	1.05	2.10	5.16	10.04	14.64	18.96	22.90	26.52	29.82	32.80	37.40	40.08	40.60	37.76	30.24
14.00	–	1.02	2.02	4.98	9.68	14.10	18.24	22.10	25.56	28.84	31.68	36.00	38.64	39.20	36.48	29.16
15.00	–	0.98	1.95	4.80	9.36	13.62	17.60	21.30	24.72	27.86	30.56	34.80	37.44	37.80	35.20	28.08
16.00	–	0.95	1.89	4.66	9.04	13.20	17.04	20.70	24.00	26.88	29.60	33.80	36.24	36.68	34.24	27.00
17.00	–	0.92	1.83	4.52	8.80	12.78	16.56	20.00	23.28	26.18	28.64	32.60	35.04	35.56	33.28	26.28
18.00	–	0.90	1.78	4.38	8.52	12.42	16.08	19.50	22.56	25.34	27.84	31.80	34.08	34.44	32.32	25.56
19.00	–	0.87	1.74	4.26	8.32	12.12	15.68	19.00	21.96	24.78	27.20	31.00	33.12	33.60	31.36	24.84
20.00	–	0.85	1.69	4.16	8.08	11.82	15.28	18.50	21.48	24.08	26.40	30.20	32.40	32.76	30.40	24.12
21.00	–	0.83	1.65	4.06	7.92	11.52	14.88	18.00	20.88	23.52	25.76	29.40	31.68	31.92	29.76	23.76
22.00	–	0.81	1.61	3.96	7.72	11.28	14.56	17.60	20.40	22.96	25.28	28.80	30.96	31.08	29.12	23.04
23.00	–	0.79	1.58	3.88	7.56	10.98	14.24	17.20	19.92	22.40	24.64	28.20	30.24	30.52	28.48	22.68
24.00	–	0.78	1.54	3.80	7.40	10.80	13.92	16.90	19.56	21.98	24.16	27.60	29.52	29.96	27.84	22.32
25.00	–	0.76	1.51	3.72	7.24	10.56	13.68	16.50	19.20	21.56	23.68	27.00	29.04	29.40	27.20	21.60
30.00	–	0.69	1.38	3.40	6.60	9.66	12.48	15.10	17.52	19.60	21.60	24.60	26.40	26.60	24.96	19.80
35.00	–	0.64	1.28	3.14	6.12	8.94	11.52	14.00	16.20	18.20	20.00	22.80	24.48	24.64	23.04	18.36
40.00	–	–	1.19	2.94	5.72	8.34	10.80	13.10	15.12	17.08	18.72	21.40	22.80	23.24	21.44	17.28
45.00	–	–	1.13	2.78	5.40	7.86	10.16	12.30	14.28	16.10	17.60	20.20	21.60	21.84	20.48	16.20
50.00	–	–	1.07	2.64	5.12	7.44	9.68	11.70	13.56	15.26	16.80	19.00	20.40	20.72	19.20	15.48
55.00	–	–	1.02	2.50	4.88	7.14	9.20	11.10	12.96	14.56	16.00	18.20	19.44	19.60	18.56	14.76
60.00	–	–	0.98	2.40	4.68	6.84	8.80	10.70	12.36	13.86	15.20	17.40	18.72	18.76	17.60	14.04
65.00	–	–	0.94	2.30	4.48	6.54	8.48	10.30	11.88	13.30	14.72	16.80	18.00	18.20	16.96	13.32
70.00	–	–	0.90	2.22	4.32	6.30	8.16	9.90	11.40	12.88	14.08	16.20	17.28	17.36	16.32	12.96
75.00	–	–	0.87	2.14	4.20	6.12	7.92	9.50	11.04	12.46	13.60	15.60	16.80	16.80	15.68	12.60
80.00	–	–	–	2.08	4.04	5.88	7.60	9.20	10.68	12.04	13.28	15.00	16.08	16.24	15.36	12.24
85.00	–	–	–	2.02	3.92	5.70	7.44	9.00	10.44	11.62	12.80	14.60	15.60	15.96	14.72	11.88
90.00	–	–	–	1.96	3.80	5.58	7.20	8.70	10.08	11.34	12.48	14.20	15.36	15.40	14.40	11.52
95.00	–	–	–	1.90	3.72	5.40	7.04	8.50	9.84	11.06	12.16	13.80	14.88	15.12	14.08	11.16
100.00	–	–	–	1.86	3.64	5.28	6.80	8.30	9.60	10.78	11.84	13.40	14.40	14.56	13.76	10.80
125.00	–	–	–	1.66	3.24	4.74	6.08	7.40	8.52	9.66	10.56	12.00	12.96	13.16	12.16	9.72
150.00	–	–	–	1.52	2.96	4.32	5.60	6.70	7.80	8.82	9.60	11.00	11.76	12.04	11.20	9.00
200.00	–	–	–	–	2.56	3.72	4.80	5.80	6.72	7.56	8.32	9.60	10.32	10.36	9.60	7.56
250.00	–	–	–	–	2.28	3.36	4.32	5.20	6.00	6.86	7.52	8.60	9.12	9.24	8.64	6.84
300.00	–	–	–	–	2.08	3.06	3.92	4.80	5.52	6.16	6.88	7.80	8.40	8.40	8.00	6.12
350.00	–	–	–	–	1.92	2.82	3.68	4.40	5.16	5.74	6.40	7.20	7.68	7.84	7.36	5.76
400.00	–	–	–	–	–	2.64	3.44	4.10	4.80	5.32	5.92	6.80	7.20	7.28	6.72	5.40
450.00	–	–	–	–	–	2.46	3.20	3.90	4.56	5.04	5.60	6.40	6.72	7.00	6.40	5.04
500.00	–	–	–	–	–	2.34	3.04	3.70	4.32	4.76	5.28	6.00	6.48	6.44	6.08	4.68
750.00	–	–	–	–	–	–	2.48	3.00	3.48	3.92	4.32	5.00	5.28	5.32	5.12	3.96
1,000.00	–	–	–	–	–	–	–	–	3.00	3.36	3.68	4.20	4.56	4.76	4.16	3.60
1,500.00	–	–	–	–	–	–	–	–	–	–	3.04	3.40	3.84	3.64	3.52	2.88
2,000.00	–	–	–	–	–	–	–	–	–	–	–	–	3.12	3.36	3.20	2.52
3,000.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.56	2.16

Chapter 3

Smoking Behaviour

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Highlights

■ Fifteen percent of Canadian youth aged 10-19 years are current smokers. This amounts to almost 400,000 individuals. Two percent are former smokers, while the majority, 83%, are classified as non-smokers (those who have smoked fewer than 100 cigarettes in their lifetime). In comparison, one third of Canadian adults are current smokers.

■ Declining rates of smoking among Canadian youth aged 15-19 years not only have halted, but appear to be headed upward. Twenty-four percent of 15- to 19-year-olds in 1994 are current smokers, a rate significantly lower than the 29% in 1985, but higher than the rate of 21% in 1990. This upward trend in smoking has also been noted in several recent surveys.

■ Seven percent of 10- to 14-year-olds, representing 138,000 Canadian youth, and 6% of 15- to 19-year-olds, another 118,000 youth, were beginner smokers at the time of the survey.

■ Ten percent of youth aged 10-19 years, representing 387,000 Canadian adolescents, smoke daily – a level that makes it difficult for them to quit.

■ Age differences in current smoking are notable: rates of current smoking increase from 3% among 10- to 12-year-olds to 29% of 18- to 19-year-olds. Among current smokers, the amount consumed is sharply higher among 15- to 19-year-olds (10.8 cigarettes daily) than among 10- to 14-year-olds (6.5 cigarettes daily).

■ The period before 15 years of age, especially the period between 13 and 14 years, is a critical time for the adoption of smoking. First, the proportion of current smokers who smoke daily increases dramatically between 10 and 15 years of age and then remains stable. Second, the percentage of youth *beginning* smoking peaks at 13-14 years and declines thereafter. And, third, the resistance to smoking is lowest among 13- to 14-year-olds.

■ Provincial differences in smoking are striking. Provinces with rates of smoking above the national average of 15% are Newfoundland (19%) and Quebec (18%), whereas provinces with lower than average rates are Ontario (13%) and Saskatchewan (12%). Other important provincial differences are that youth from provinces with the highest rates of smoking also demonstrate the highest perceived access to cigarettes and display the highest increases in smoking between the age groups 10-12 and 13-14. As well, the use of chewing tobacco and snuff is highest among youth from Saskatchewan and Alberta.

■ Sex differences are generally minimal. Although current smoking does not differ between males and females (15% vs. 16%), male smokers smoke more cigarettes daily than do females (10.4 vs. 9.4), and males are more likely than females to have tried tobacco products other than cigarettes. At ages 13-14 and 15-17, females are more likely than males to be beginner smokers.

■ Current smoking is highest among those reporting poor academic performance and those working more than 10 hours per week.

■ These findings underline the importance of prevention programs and indicate that these programs should start early and be reinforced continuously throughout the adolescent years.

Methods

The variables of central interest in this chapter relate to smoking status and amount smoked. As described in detail in Chapter 2, two smoking status measures are employed. First, a three-category measure distinguishes current smokers (those who have smoked at least 100 cigarettes in their lifetime *and* had smoked during the 30 days preceding the survey), former smokers (those who have smoked 100 or more cigarettes but did not smoke during the 30 days preceding the survey), and non-smokers (those who had smoked fewer than 100 cigarettes in their lifetime by the time of the survey in the fall of 1994). Also, when sample size permits, a six-category measure is used in which current smokers are further divided into daily and non-daily smokers and non-smokers are further divided into beginners (those who have smoked fewer than 100 cigarettes in their lifetime and smoked during the month prior to the survey), past experimenters (those who have smoked fewer than 100 cigarettes but did not smoke during the month preceding the survey), and lifetime abstainers (those who have smoked less than one whole cigarette in their lifetime). In addition, among current smokers, two consumption measures are employed: the typical number of cigarettes smoked daily (presented in categories) and the number of cigarettes consumed during the seven days before the survey (presented as an average). Initiation into smoking was measured by

the age when respondents reported smoking their first whole cigarette (see Chapter 2 for details on the above variables).

Several variables are employed to examine variation in smoking behaviours. As described in detail in Chapter 2, three different age groupings are used in this chapter: a two-category measure (10-14 and 15-19 years); a four-category measure (10-12, 13-14, 15-17, and 18-19 years); and, for total population estimates only, a 10-category measure (ages 10 through 19 years). The decision regarding which age grouping to use was based primarily on the need to ensure reliable estimates and to reduce data suppression. In addition to age, five other standard variables described in Chapter 2 are also employed: sex, province, language usually spoken at home, academic performance, and hours worked.

Six additional variables are used in this chapter. The first is a measure of self-identified Aboriginal status. Respondents were asked, "Are you an Aboriginal person, that is, a Native American Indian, Métis, or Inuit (Eskimo)?" (SS4, HH80, that is, School Survey Question 4 and Household Survey Question 80; see Appendix A). An additional smoking behaviour question examines the inhalation of cigarette smoke. Respondents who smoked during the 30 days preceding the survey were asked, "Do you inhale the cigarette smoke when you smoke (that is, breathe the smoke into your lungs)?" (SS20, HH12). As well, three questions are examined regarding accessibility of tobacco and contemplation of smoking. Never smoking respondents (defined as those who never tried smoking, never smoked a whole cigarette, or tried cigarettes only a few times but not during the 30 days prior to the survey) were asked, "Do you think it would be difficult or easy for you to get cigarettes if you wanted to try smoking?" (SS11, HH37). Contemplation of smoking was measured by the following two questions: never smoking respondents (defined as in the access question above) were asked, "Have you ever seriously thought about trying smoking?" (SS9b, HH35) and "Do you think you might try smoking within the next month?" (SS10, HH36). Finally, the association between smoking and accessible income was measured by the following question: "About how much money do you get each week to spend on yourself or save (include money from jobs, allowances or any other source)?" (SS67, HH78). All of the above questions were identical for the school and household survey components, and rates of missing data for the above items were below 2%.

As discussed in Chapter 2, all estimates have been examined to ensure a reasonable level of reliability based on the coefficient of variation. In this chapter, we will see that some of the finer distinctions in smoking status are not releasable or exhibit moderate sampling variability due to small numbers. This is especially apparent for beginner smokers (n = 1,625), former smokers (n = 299), and current non-daily smokers (n = 1,051). For this reason, the six-category smoking status classification is used sparingly. Also, as discussed in Chapter 2, the reader should recall that analyses in this chapter are primarily descriptive and that causal interpretations cannot be drawn from any associations described herein.

Results

Tobacco Use Behaviours

Prevalence of Tobacco Use: All Youth

Of all youth surveyed, 15% (580,000 young Canadians) are classified as current smokers, 2% (56,000) are classified as former smokers, and 83% (3.2 million) are classified as non-smokers (Table 3-1, at end of chapter). The largest category of current smokers is daily smokers (10% of all youth), followed by non-daily smokers (5%), while the 83% of non-smokers are composed of *lifetime abstainers*, those who have never smoked a whole cigarette in their lifetime (65%), *past experimenters*, those who have smoked fewer than 100 cigarettes in their lifetime but did not smoke during the 30 days preceding the survey (12%), and *beginners*, those who smoked during the 30 days prior to the survey and have not smoked more than 99 cigarettes in their lifetime (7%).

Cigarettes are by far the most commonly used tobacco product; 36% of youth report at least trying cigarettes at some point. Other than cigarettes, the most common tobacco products ever tried are cigars and pipes, tried by 20% of all youth, chewing tobacco, tried by 8%, and snuff, tried by 3% (Tables 3-A and 3-2). Rates of use of these tobacco products during the week preceding the survey are 3% or lower.

Regarding the number of cigarettes smoked, over half of current smokers (55%) smoke 10 or fewer cigarettes daily, while 31% smoke 11-20 cigarettes and 15% smoke 21 or more cigarettes daily (Table 3-3). On average, current smokers who smoked in the week preceding the survey smoked 9.9 cigarettes daily. Virtually all current smokers (99%) report inhaling cigarettes when smoking, a rate that remains unchanged regardless of background characteristics (data not shown).

Beginning to Smoke

The percentage classified as beginner smokers peaks at ages 13 and 14 (11% and 12%, respectively), but the relative increase in beginning smoking is most pronounced between 10 and 12 years of age. During this period, initiation increases by 300% (from 2% to 8%) (Table 3-1, Fig. 3-A). In contrast, smoking initiation between 12 and 14 years of age increases by only 50% (from 8% to 12%). It is also important to note that even small and moderate percentages represent a large number of youth. As seen in Table 3-B, 41,000 13-year-olds and 46,000 14-year-olds are beginner smokers, and the 10% of youth who smoke daily represent 387,000 Canadian adolescents.

Beginning smoking varies by sex (Fig. 3-B). Although beginning smoking does not differ between males and females aged 10-12 years (4%, respectively), rates among 13- to 14-year-old females are significantly higher than among their male counterparts (15% vs. 9%). This difference decreases with increasing age.

One means of evaluating the progression to regular smoking is by examining the percentage of current smokers who smoke daily. This percentage grows steadily from 11% among 11-year-olds to 75% among 15-year-olds. After 15 years of age, rates of daily smoking remain stable (Fig. 3-C).

The adoption of smoking can also be evaluated by examining the age at which the first whole cigarette was smoked. As seen in Figure 3-D, the age at which the first whole cigarette is smoked decreases with each age cohort. This shift toward starting smoking at younger ages is quite pronounced; whereas 30% of the 13-year-olds had smoked one whole cigarette by age 12, the same percentage was reached among 15-year-olds by age 13.5, and among 19-year-olds by age 15 (see Methodological Considerations for further discussion regarding this finding).

Table 3-A
Smoking and Other Tobacco Use, Age 10-19, Canada, 1994

	Ever Tried (%)		Cigarette Use (%)
Cigarettes	36	Smoke daily	10
Cigars or pipes	20	Smoke non-daily	5
Chewing tobacco	8	Beginning to smoke	7
Snuff	3		

Figure 3-A
Current and Beginning Smoking, by Age, Canada, 1994

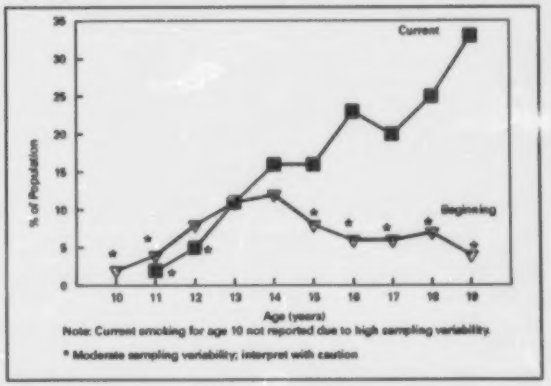

Current
Beginning
% of Population
Age (years)
Note: Current smoking for age 10 not reported due to high sampling variability.
* Moderate sampling variability; interpret with caution

Table 3-B
Beginning Smoking and Current Daily Smoking, by Age, Canada, 1994

	Population Estimate	
	Beginner Smokers	Current Daily Smokers
Total, 10-19	**256,000**	**387,000**
10	6,000	#
11	14,000	#
12	31,000	5,000
13	41,000	17,000
14	46,000	22,000
15	30,000	46,000
16	22,000	66,000
17	22,000	55,000
18	28,000	75,000
19	16,000	99,000

Data suppressed due to high sampling variability

Figure 3-B
Beginning Smoking, by Age and Sex, Canada, 1994

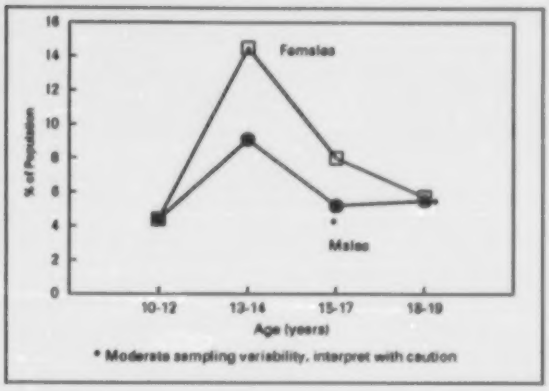


Figure 3-C
Current Smokers Who Smoke Daily, by Age, Canada, 1994

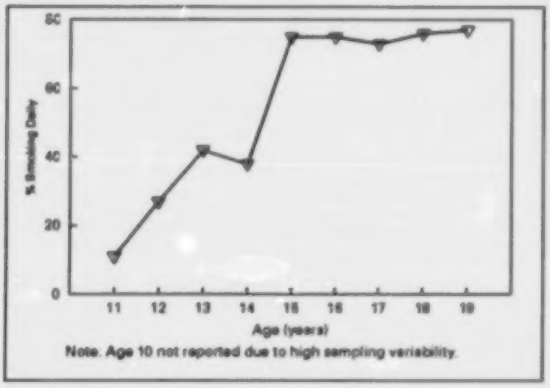
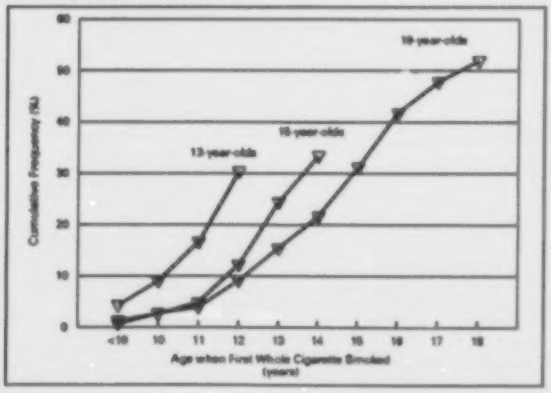


Figure 3-D
Cumulative Frequency Distribution of Age First Smoked, Canada, 1994



Access and Contemplation

In addition to smoking consumption measures, the YSS also asked respondents about issues regarding access to tobacco and contemplation of its use. From a policy standpoint, the responses of never smokers are of great interest in these matters, since it is this group that is at risk of smoking adoption.

Just over half (56%) of never smokers report that it would be easy for them to get cigarettes if they wanted to try smoking (Table 3-C). Not surprisingly, age differences are sizeable, with 33% of 10- to 14-year-olds and 88% of 15- to 19-year-olds reporting easy access.

Interestingly, sex differences in perceived access are larger for never smokers aged 10-14 years (36% of males vs. 29% of females) than they are for 15- to 19-year-olds (88% of males vs. 87% of females).

Provincial differences in perceived accessibility of cigarettes are striking in several respects. In Figure 3-E, we display provincial differences in rates of current smoking among all 10- to 14-year-olds by the percentage of never smokers who perceive easy access to cigarettes. The horizontal and vertical lines in this display represent the national averages of 33% for easy access and 7% for current smoking. First, this display shows that the percentage of never smokers perceiving easy access to cigarettes ranges from 30% (Alberta and Ontario) to 38% (Quebec) and 39% (Newfoundland). Moreover, this display shows some association between rates of current smoking and access. Quebec shows higher than average rates of both current smoking (12%) and easy access (38%). Although youth from Newfoundland perceive higher than average access, their rate of current smoking is within 1 percentage point of the national average. Youth from Ontario are at the opposite extreme from youth from Quebec, displaying both lower than average rates of current smoking (4%) and lower than average easy access (30%). Although the association between rates of smoking and easy access is interesting and policy-relevant, we cannot interpret these data causally (see Methodological Considerations for a comment on this finding).

The two measures regarding contemplating cigarette smoking – ever having seriously thought about trying cigarettes and the likelihood of trying cigarettes within the month following the survey – also provide some context to consumption behaviours. Negative responses to these contemplation questions could be

viewed as an indicator of resistance to smoking adoption. Among all never smokers, a sizeable majority report not thinking seriously about trying cigarettes or trying cigarettes within the month following the survey (both 88%). Figure 3-F shows that resistance to smoking is lowest among 13- to 14-year-olds. Smoking resistance does not vary significantly according to sex (89% of males vs. 87% of females) or province (with estimates ranging between 85% and 90%), but it does differ according to Aboriginal status (79% of Aboriginals vs. 95% of non-Aboriginals) and academic performance (75% with poor performance vs. 81% with average performance and 85% with above-average performance) (data not shown).

Population Subgroups

Age

Age is by far the most dominant factor related to smoking behaviour. Examining smoking according to each year of age shows strong age effects. In Figure 3-A, we see that rates of current smoking increase sharply among young adolescents, from under 5% among those aged 11 and 12 years to 33% among 19-year-olds. It is also evident that smoking status and other consumption measures show large differences according to age (Table 3-1). First, smoking status differs by age group, especially for current smokers (7% of 10- to 14-year-olds vs. 24% of 15- to 19-year-olds) and non-smokers (93% of 10- to 14-year-olds vs. 74% of 15- to 19-year-olds). The percentage reporting current smoking also represents a significant number of Canadian youth: 63,000 10- to 14-year-olds and 227,000 15- to 19-year-olds. Former smoking is rare and does not vary by age (1% of 10- to 14-year-olds vs. 2% of 15- to 19-year-olds).

In addition to being more likely to smoke, older youth smoke more cigarettes than do younger youth. On average, current smokers aged 10-14 years who smoked during the week preceding the survey consumed 6.5 cigarettes daily, compared to 10.8 cigarettes among those aged 15-19 years (Table 3-3).

Age differences in the percentage trying other tobacco products are negligible for cigars and pipes, chewing tobacco, and snuff (Table 3-2).

Table 3-C
Easy Access to Cigarettes, by Sex and Age, Never Smokers, Canada, 1994

	Perceived Easy Access (%)
Total, 10-19	**56**
10-14	33
15-19	88
Males, 10-19	**59**
10-14	36
15-19	88
Females, 10-19	**53**
10-14	29
15-19	87

Figure 3-E
Current Smoking, by Perceived Ease of Access to Cigarettes and Province, Age 10-14, Canada, 1994

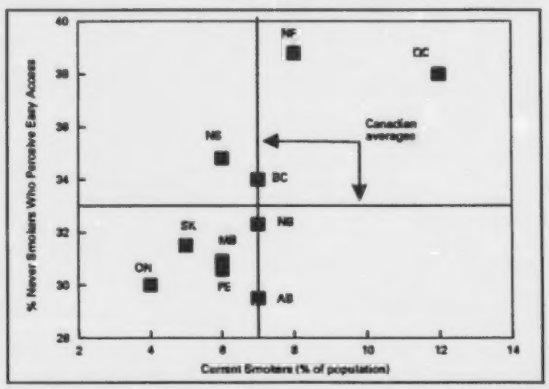


Figure 3-F
Never Smokers Not Considering Smoking, by Age, Canada, 1994

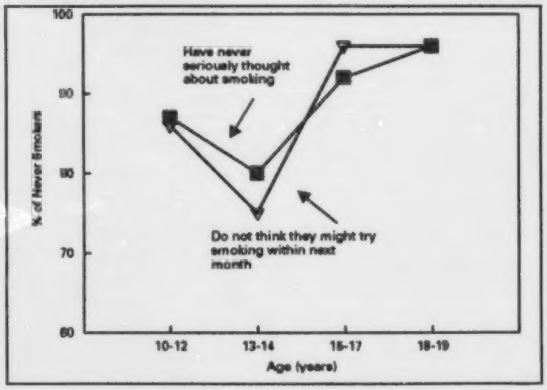


Figure 3-G
Current Smoking, by Age and Sex, Canada, 1994

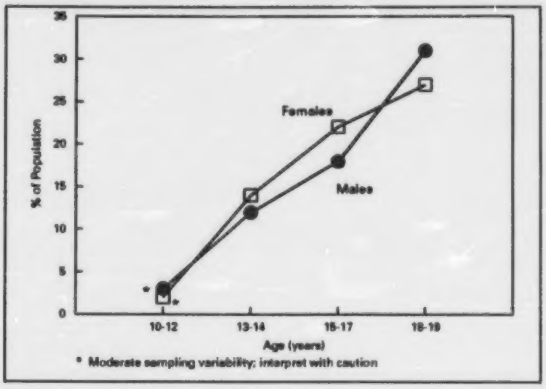
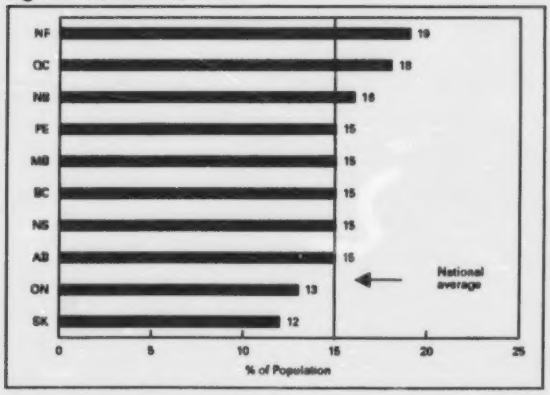


Table 3-D
Age at Which First Whole Cigarette Smoked, by Sex and Age, 10- to 19-year-olds Who Have Smoked an Entire Cigarette, Canada, 1994

	Average Age (years)
Total, 10-19	**12.8**
10-14	10.6
15-19	13.5
Males, 10-19	**12.9**
10-14	10.2
15-19	13.6
Females, 10-19	**12.8**
10-14	10.9
15-19	13.4

Figure 3-H
Current Smoking, by Province, Age 10-19, Canada, 1994



Sex

Sex differences in smoking are generally minimal in the youth population; consequently, sex is not presented in all tables in this chapter. As seen in Table 3-4, 15% of males are current smokers, compared to 16% of females. Sex differences in current smoking, however, vary by age (Fig. 3-G). Between the ages of 13 and 17 years, females are slightly more likely than males to report current smoking, whereas among 18- to 19-year-olds, men are more likely than women to smoke (31% vs. 27%).

Although rates of current smoking do not vary by sex, overall, male smokers consume more cigarettes daily than do female smokers. Male smokers aged 10-14 years consume 7.3 cigarettes daily, compared to 5.7 cigarettes among females. The respective difference among 15- to 19-year-olds is 11.2 versus 10.3 cigarettes (Table 3-4).

As seen in Table 3-D, also absent is any sex difference among smokers for the age at which the first whole cigarette was smoked.

Males are much more likely than females to try cigars and pipes (26% vs. 14%), chewing tobacco (13% vs. 3%), and snuff (5% vs. 2%) during their lifetime (Table 3-2). Current use is also higher for males, but it is low for both sexes compared to cigarette use.

Province

Provincial differences in current smoking are evident in several respects (Table 3-5).

As seen in Figure 3-H, provinces with rates significantly above the national average of current smoking (15%) are Newfoundland (19%) and Quebec (18%), whereas those with below-average rates are Ontario (13%) and Saskatchewan (12%). Youth from the remaining six provinces report average rates of current smoking. This ranking in smoking according to province is similar for both 10- to 14-and 15- to 19-year-olds.

In Figure 3-I, we display the percentage of 10- to 19-year-olds who report current smoking and the average number of cigarettes consumed daily among smokers who smoked during the week preceding the survey. The horizontal and vertical lines in Figure 3-I indicate the national averages for the number of cigarettes (9.9) and current smoking (15%). (The two axes are based on different measurement scales, so we should be cautious about interpreting these data too

literally, since the degree of sampling error is dissimilar.) Descriptively, however, this display serves as a useful means of visualizing the interplay between prevalence and amount smoked across provinces. The following are evident from Figure 3-I: (1) youth from four provinces, Manitoba, Alberta, Prince Edward Island, and Nova Scotia, show prevalence and consumption near the national average; (2) youth from British Columbia report average prevalence but lower than average consumption; (3) youth from Saskatchewan and Ontario display lower than average prevalence, those from Ontario show above-average consumption, and those from Saskatchewan display average consumption; (4) youth from New Brunswick show slightly above-average prevalence and above-average consumption; and (5) youth from Quebec and Newfoundland show higher than average prevalence, with the former reporting average consumption and the latter reporting slightly below-average consumption.

Rates of smoking also differ by province in another respect. As seen in Figure 3-J, the relationship between current smoking and province differs by age, although smoking increases sharply with age in all cases. Most notably, we see the following: (1) rates of current smoking increase rapidly among youth from Newfoundland, rising from 2% among 10- to 12-year-olds to 38% among 18- to 19-year-olds (nationally, this increase is from 3% to 29%); (2) youth from Quebec show the most rapid increase in current smoking between the ages 10-12 and 13-14; however, after this point, increases in current smoking by age among Quebec youth remain nominal; and (3) increases in current smoking by age occur more slowly among youth in Ontario and Saskatchewan. Despite these different rates, however, smoking is fairly consistent across most provinces by the end of adolescence.

Provincial differences are also evident for the use of other tobacco products (Table 3-E). Youth from Saskatchewan and Alberta are significantly more likely than the average youth to report trying chewing tobacco (22% and 20% vs. 8% nationally) and snuff (7% and 7% vs. 3% nationally).

Language

Language usually spoken at home is another demographic characteristic associated with differences in rates of smoking (Table 3-6). Francophones report the highest rate of smoking (20%), followed by anglophones (15%) and speakers of other languages (6%, but with moderate sampling variability). Language differences, however, vary by age group.

Figure 3-I
Current Smoking, by Amount Smoked and Province, Age 10-19, Canada, 1994

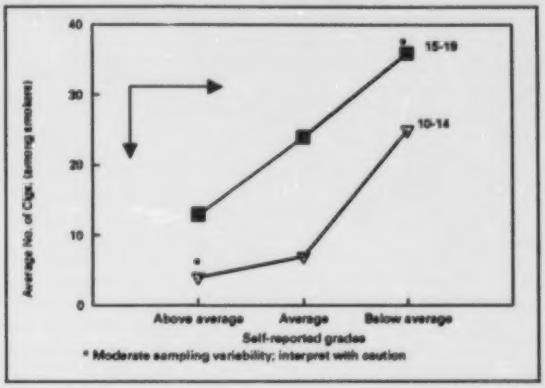


Figure 3-J
Current Smoking, by Age and Province, Age 10-19, Canada, 1994

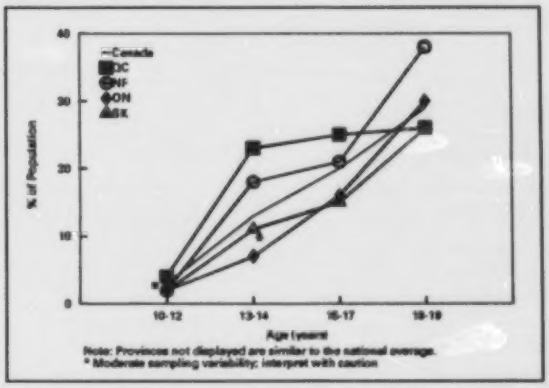


Figure 3-K
Current Smoking, by Age and Language, Canada, 1994

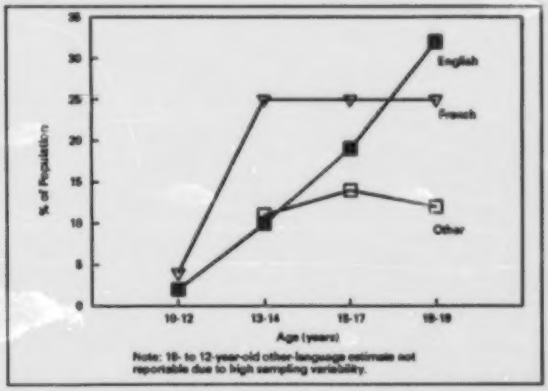
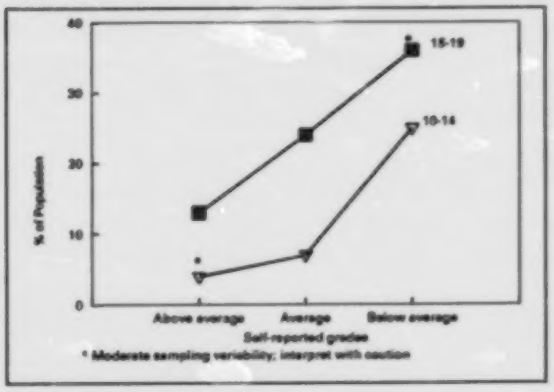


Table 3-E
Lifetime Prevalence of Other Tobacco Use, by Province,[a] Age 10-19, Canada, 1994

Province	Cigars or Pipes (%)	Chewing Tobacco (%)	Snuff (%)
Canada	**20**	**8**	**3**
Prince Edward Island	17	5	#
Newfoundland	18	5	#
Nova Scotia	18	6	2
Quebec	18	3	5
New Brunswick	18	6	3
Ontario	20	7	#
British Columbia	21	10	3
Manitoba	23	10	3
Alberta	23	20	7
Saskatchewan	24	22	7

Data suppressed due to high sampling variability
a. Provinces ordered in increasing order of total tobacco use.

Figure 3-L
Current Smoking, by School Grades and Age, Canada, 1994



As seen in Figure 3-K, current smoking increases dramatically between 10- to 12- and 13- to 14-year-old francophones (from 4% to 25%), with age differences remaining stable at 25% thereafter. In contrast, increases in current smoking among anglophones show a strong linear progression (2% → 10% → 19% → 32%), whereas smoking among speakers of other languages does not exceed 15% regardless of age. The relationship between age and current smoking is similar among francophone youth and youth from Quebec (Fig. 3-J). It is beyond the scope of this chapter, however, to identify the underlying source of this relationship.

We also see in Table 3-6 that, although speakers of other languages are least likely to smoke, such smokers smoke a greater number of cigarettes (12.0 cigarettes compared to 10.2 cigarettes among francophones and 9.7 cigarettes among anglophones). Finally, the age at which smokers consume their first whole cigarette does not differ significantly according to language (13.0 among anglophones, 12.6 among francophones, and 12.4 among other-language speakers) (data not shown).

Aboriginal Status

As discussed in Chapter 1, an important element of the YSS is the large sample size. Consequently, the smoking behaviours of groups whose sample size is usually too small in other surveys to be useful can be examined. Adolescent Aboriginals are one of these groups. Although 858 youth (4% of the total sample) identified themselves as Aboriginal, estimates based on small percentages (e.g., current smoking) can be unstable. We can, however, examine non-smoking status. As seen in Table 3-7, Aboriginal youth are less likely than non-Aboriginal youth to have never smoked more than 100 cigarettes in their lifetime (76% vs. 84%); among smokers, however, there is no dramatic difference in the number of cigarettes smoked daily (9.0 cigarettes among Aboriginals vs. 10.0 cigarettes among non-Aboriginals). Aboriginal smokers are, however, somewhat more likely than non-Aboriginal smokers to have smoked their first whole cigarette at an earlier age (11.6 vs. 12.9 years) (data not shown).

Academic Performance

In Table 3-8 and Figure 3-L, we see that rates of current smoking differ significantly by self-reported academic performance for youth attending school (94% of sample). Only 8% of those with above-average academic performance report current smoking, compared to 15% of those with average grades and 25% of those with below-average grades. Differences in current smoking hold regardless of age group. Among 10- to 14-year-olds, rates of current smoking increase fivefold, from 4% among those with above-average grades (moderate sampling variability) to 20% among those with below-average grades. The respective increase among 15-to 19-year-olds is from 13% to 36% (moderate sampling variability) – almost three times. Despite differences in the prevalence of

smoking, among smokers there is no substantial difference in the number of cigarettes consumed daily (9.0 cigarettes among those with above-average grades, 8.7 among both those with average grades and those with below-average grades). Among smokers, however, those with poorer academic performance initiate smoking earlier. The average age of the first whole cigarette smoked is 11.5 among those with below-average grades, 12.7 among those with average grades, and 13.0 among those with above-average grades (data not shown).

Hours Worked and Income

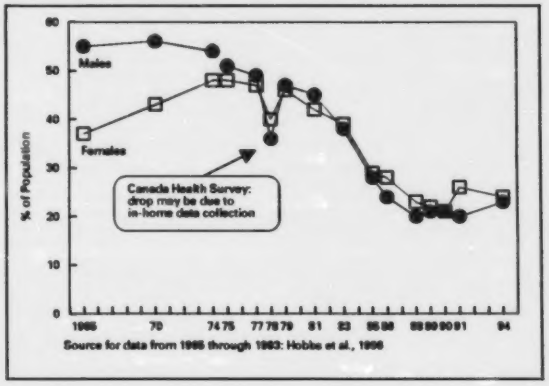
In Table 3-9, we find that current smoking differs by the number of hours worked during the week preceding the survey for those working at a paid job, including babysitting, cutting lawns, and part-time work (51% of the total sample). Those who work 10 or more hours weekly are twice as likely as those working fewer than 10 hours to be current smokers (26% vs. 10%), and this difference occurs equally among those aged 10-14 years (13% vs. 8%) and those aged 15-19 years (30% vs. 16%). The amount of income available weekly is also associated with smoking status. As seen in Table 3-F, in each age group, current smokers report higher weekly incomes than do former smokers and non-smokers. Readers must recall, however, that the associations between smoking and other variables discussed in this chapter are purely descriptive. Without multivariate analyses, for instance, we cannot separate the influence of hours worked from income earned.

Table 3-F
Type of Smoker and Average Amount of Money Received Per Week, by Age, 10- to 19-year-olds Reporting an Income, Canada, 1994

	Amount of Money Received Per Week ($)		
	Current Smoker	Former Smoker	Non-smoker
10-12	33	#	23
13-14	46	29	32
15-17	52	36	39
18-19	114	96	85

Data suppressed due to high sampling variability

Figure 3-M
Current Smoking, by Sex, Age 15-19, Canada, 1965-1994


Males
Females
% of Population
Canada Health Survey: drop may be due to in-home data collection
Source for data from 1965 through 1993: Hobbs et al., 1996

Discussion

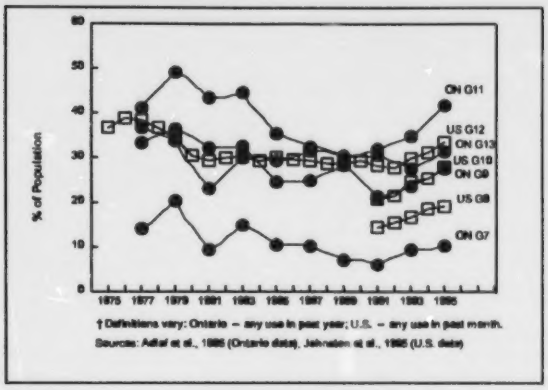
Prevalence of Cigarette Smoking

Comparison with Other Surveys

Most adult surveys that address smoking report data for the 15-19 year age group, but the YSS is a rare example of national information for any younger ages (see Table 1-A). Figure 3-M shows the long-term changes in the prevalence of smoking among people aged 15-19 from Canadian national surveys (data for 1965 through 1993 taken from the summary by Hobbs et al.[8]). Prior to the mid-1970s, male youth were more likely to smoke than female youth; by 1975, however, about half of 15- to 19-year-olds of either sex were current smokers. From 1975 to 1988, the prevalence of smoking by youth of both sexes declined markedly, but this downward trend ended around 1988 or 1989.

The 24% smoking prevalence estimate for 15- to 19-year-olds in the YSS is equal to that of the General Social Survey of 1991[13] and slightly higher than the figure of 21% for the 1990 Health Promotion Survey.[11] This evidence of an increase in smoking is strengthened by the consideration of other sources. There are several other surveys around 1994 to which the YSS data may be compared. Cycle 1 of the Survey on Smoking in Canada[7] reported that 27% of people aged 15-19 were current smokers. Canada's Alcohol and Drug Survey of 1994[6] also reported a slightly higher prevalence than the YSS for this age group, at 30%. Given that these other estimates put the prevalence of smoking in 1994 in this age group at least as high as the YSS estimate, the overall picture is that of an increase in the prevalence of smoking by youth. At a minimum, it is quite clear that there has been no overall progress in preventing youthful smoking since the late 1980s.

Figure 3-N
Smoking Prevalence,† by Grade, Ontario and United States, 1975-1995


% of Population
ON G11
US G12
ON G13
US G10
ON G9
US G8
ON G7
† Definitions vary: Ontario – any use in past year; U.S. – any use in past month.
Sources: Adlaf et al., 1995 (Ontario data), Johnston et al., 1995 (U.S. data)

This picture would be clearer still if national estimates existed for the intervening years, 1992 and 1993, [14] but other types of studies do indicate increases in this period. There are few places in Canada where trends in smoking among school-age youth can be assessed (see Table 1-B). In Ontario, student drug use has been monitored since 1977. [1] That study has found the prevalence of smoking (any use in the year preceding the survey) to have increased steadily between 1991 and 1995 for grade 7, 9, and 11 students (Fig. 3-N). Nova Scotia does not have annual data, but the changes in student smoking can be seen by comparing 1990 data with data from a repeat study in 1994. [10] Students in grades 6, 8, 10, and 12 were included in the survey. The Nova Scotia study also shows a significant increase: in 1990, 15% of students smoked seven or more cigarettes weekly (and another 4% smoked less frequently), while in 1994 the percentage smoking at this rate was 20% (with 5% smoking less frequently). These results are paralleled in work from the United States. The Monitoring the Future Study conducted by the University of Michigan has also found increases in cigarette smoking (any use in the month preceding the study) among 8th graders, 10th graders, and 12th graders during the period from 1991 to 1995 [9,16] (Fig. 3-N).

Methodological Considerations

A few methodological issues regarding findings in this chapter are worthy of brief mention. The first regards the shift toward starting smoking at younger ages. It should be noted that our analyses corrected for the fact that starting smoking is possible only in ages younger than the age at interview (see Gmel and Rehm [5]). Thus, the cumulative frequency distributions in Figure 3-D are censored (i.e., cannot be lower) at the age one year younger than the age at interview (e.g., for 10-year-olds at 9, for 19-year-olds at 18, etc.). It is possible that the mode of administration (school-based data collection for 10- to 14-year-olds, household-based for 15- to 19-year-olds) may have contributed to the differences; however, within each of the two components, younger cohorts also tended to start smoking earlier. Moreover, as noted in Chapter 2, there was no evidence that reports of smoking behaviours differed significantly between the household and school components. Another methodological effect may contribute to the differences: 19-year-olds may no longer remember that they tried a cigarette at age 11, whereas for a 12-year-old this event may be more salient and thus recalled. However, it seems unlikely that these methodological effects can fully account for the large differences in age of first cigarette. The most compelling conclusion is that the age of smoking initiation has decreased among Canadian adolescents.

The second methodological issue concerns the influence of age on smoking and, more generally, the limitations of cross-sectional studies. In studies such as the YSS, two age-related processes are at play: first, those related to maturational effects – influences due to adolescent maturational development – and second, those related to generational or cohort effects – influences due to growing up during different time periods. The descriptive analysis provided in this chapter does not seek to separate these two processes. More generally, with cross-sectional data, even when two variables are highly associated with one another, it is still difficult to establish causality. For example, although we found an association between rates of smoking and easy access (Fig. 3-E), we cannot interpret these data causally, since we cannot establish whether perceived ease of access causes smoking or whether smoking causes perceived ease of access. In any event, these data do point to the usefulness and potential of the YSS data for future policy research.

A third point to note is that the prevalence rates reported here are probably the lower bound of the true range, due to the likely direction of response bias (see Chapter 2) and the possibility that some past experimenters will become smokers at a later stage.

Implications for Regulation and Education

Knowledge of the prevalence of smoking among young Canadians, even knowledge that there is an increase in this prevalence, does not necessarily lead to

knowledge about how to prevent initiation of smoking. Nor does this necessarily provide any insight into the process of becoming a long-term smoker as opposed to an early quitter or former experimenter. This chapter underscores how widespread is the problem of tobacco use by young Canadians.

Information presented in Chapters 4 through 9 provides many insights into the beliefs, attitudes, and behaviours of young people around smoking (such as knowledge of health effects and perceptions of why young people smoke). In addition, other parts of this report present information necessary to monitor and evaluate the effectiveness of preventive public policy, such as school-based smoking bans and regulations on sales to minors (see Chapter 10 for a summary).

The young people who participated in the 1994 YSS (born between 1975 and 1984) have grown up with the knowledge that smoking causes health problems, that smoking is addictive, and that it is very difficult for a smoker to quit. Major British, American, and Canadian reports that linked smoking to lung cancer were released between 1962 and 1964, more than a decade before any of these young people were born.[4] Legislative efforts to protect them from the influence of cigarette advertising appeared in the early 1970s, and progressive measures to control sales of tobacco, increase prices, and reduce the number of locations where smoking is permitted have taken place (and received significant public debate) throughout the lives of these young people.

As later chapters show, most of these young people (75% of 10- to 19-year-olds; Chapter 7) have been exposed to some form of school-based health education about tobacco and are aware of the health consequences and addictiveness of smoking (Chapter 6). However, the current generation is still drawn to experiment with tobacco as previous ones were. Many of those adolescents who experiment with tobacco will become addicted.

The question remains as to how to design legislation that will keep tobacco out of the hands of children, as well as education campaigns that will reach the majority of young Canadians, convince them that the consequences of smoking are relevant for them, and teach them how to avoid smoking or quit.

Information like the YSS (and many other sources) needs to be examined to explain why access to tobacco is still high for young people (see Chapter 8) and to understand how to mobilize parents, teachers, retailers, and other adults to abide by tobacco restrictions for minors. Firmer legislative initiatives (including, notably, an increase in tobacco prices as well as effective control on distribution and use of tobacco [15]) need to be in place to help reverse this disturbing increase in smoking prevalence. As well, all of the legislative initiatives of the past 30 years need to be examined critically. While increasing restrictions have been placed on retailers and on smokers themselves, initiatives that fundamentally change the way tobacco is regulated and sold may be far more effective (i.e., restricting sale of tobacco to outlets where there is greater control, and fewer economic advantages to selling to minors). As well, one needs to examine carefully when legislative changes do not achieve their desired goals or are difficult to enforce. Healthy public policy should not focus only on more restrictive regulations, but also on ease of enforcement and public acceptance.

One striking finding is the differences seen in terms of smoking behaviour by province, as well as by language. In this regard, the YSS survey data have the potential to address several compelling questions. Study of the YSS data beyond this descriptive report should use more complex statistical approaches to address the relative importance of cultural and environmental factors and to determine if the observed provincial differences are modified by taking other differences into account. It is important to know to what extent variations in provincial tobacco policies influence provincial differences in the rates of smoking and reported access to cigarettes. Recent advances in hierarchical linear models[3] and other methods that can link provincial-level data to individual-level smoking [15] can set the stage for policy analyses that may have far-reaching public health implications. Such analysis may reveal that the policy mix that is most readily accepted, and most effective, may not be the same across the entire nation.

Another important observation in this chapter is the profound influence of age-related processes. The age period covered by the YSS includes the years of acquisition of smoking behaviour. We saw that the period under 15 years, particularly the ages 13 and 14, are especially critical to the adoption of smoking. The age of beginning smoking peaks among 13- and 14-year-olds and declines thereafter, and resistance to smoking is lowest among 13- to 14-year-olds. The

percentage smoking daily is stable after 15 years of age. In all, there were about 250,000 young Canadians in the process of beginning to smoke at the time of the survey.

Why are these changes prominent among 13- to 14-year-olds? Is this age reflective of a proneness to smoking, or is it an indicator of adolescent emancipation into the adult world? A better understanding of the relationship between age and smoking would require longitudinal studies in order to separate the interactive effects of adolescent maturation from period effects and generational effects and to identify a temporal ordering of important influences. The YSS can, however, further research on other age-related issues discussed in this chapter. One striking finding of some interest is the prominent increase in smoking that begins early among francophone youth. Future multivariate analyses might be able to shed light on this matter.

More study of the stages of progression of smoking (first experimentation, repeated use, purchasing and carrying cigarettes, and the transition to regular smoking) along with normal age-specific developmental psychology is important for designing education campaigns that reach the majority of young Canadians, that address behaviours and beliefs that are important at that particular age, and that come together to complete a comprehensive program of prevention.

Implications for Future Monitoring and Further Research

Given the increases in rates of smoking and decreases in the age of onset, the monitoring of smoking among adolescents will provide critical information for prevention programs. Moreover, these findings illustrate the value of a sample that provides reliable data for single years of age and for each province. Indeed, the YSS findings add to existing epidemiological evidence of increases in smoking among youth. Although national trend data for the population aged 10-14 years are not systematically available (see Table 1-A), student surveys have documented increases in smoking among this age group. The reasons for this, however, are not clear. One partial explanation is the marked reduction in the price of cigarettes in early 1994, which appears to be related to an increase in smoking and tobacco sales.[2,15] Still, it is also noteworthy that, in addition to smoking, use of other psychoactive substances has also increased in North America, [1,9] which, in turn, poses the question whether increases in adolescent smoking are unique to this behaviour or whether increases in smoking are a manifestation of a larger adolescent social phenomenon. Further research is necessary to explore such a hypothesis.

Another prominent research issue is the finding that adolescents seem to initiate experimental smoking earlier than prior cohorts. This shift in age of onset is quite striking in the YSS. Only further cross-sectional surveys in combination with longitudinal work can assess the stability of this finding as well as the long-term implications of experimental smoking on future addiction. With the exception of women who reached adulthood in the years before it was socially acceptable for women to smoke, few people begin smoking after reaching adulthood. In absolute terms, the highest prevalence of smoking is typically observed among the young adult years, particularly the 20s, and cessation rates become more significant in the 30s. It is not clear what the effect of increased levels of experimentation and smoking among adolescents today will be on the rate of future generations of adult smokers. Clearly, there is an enormous potential for increases in the prevalence of smoking-related illness and deaths (see Figs. 1-C and 1-D).

Perhaps most striking in the YSS is the early development of smoking behaviour. Rates of beginning smoking increase dramatically between 11 and 13 years of age, yet few national surveys since 1978 have monitored smoking among this very group. Indeed, it is hard to imagine how the spectrum of smoking behaviours can be understood by ignoring this population. Also evident from the YSS is the importance of having data on smoking by single years of age rather than the more common and cruder age categories. Indeed, the study of the process of smoking adoption and the effective targeting of prevention programs require fine age distinctions.

Certainly, today's youth are different from those who smoked in large numbers during the 1970s. As a whole, these young people were born after the period of most common drug use and are the first generation of young people who have been educated about the health effects of tobacco (see Chapter 7) and other drugs since birth. It is important to understand what makes tobacco and drug use popular for this generation. The chapters that follow this one provide an insight into this group of young people in terms of their knowledge (Chapter 7) and their beliefs and attitudes (Chapter 6), as well as a number of methods of preventing and reducing smoking among young people (Chapters 8 and 9).

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Table 3-1
Type of Smoker, by Age, Canada, 1994

		Type of smoker (%)							
		Non-smokers (have not smoked 100 cigarettes)					Current Smokers		
	Pop. Est. ('000s)	Total Non-smokers	Beginners	Past Experi-menters	Lifetime Abstainers	Former	Total Current Smokers	Current Daily	Current Non-daily
Total 10-19	**3,881**	**83**	**7**	**12**	**65**	**2**	**15**	**10**	**5**
10-14	1,949	93	7	10	76	1	7	2	4
15-19	1,932	74	6	14	54	2	24	18	6
10	391	99	2*	3*	95	#	#	#	#
11	388	98	4*	6	88	#	2*	#	2*
12	388	94	8	9	77	#	5*	#	4*
13	391	88	11	15	63	#	11	5*	6
14	391	84	12	15	56	#	16	6*	10
15	385	82	8*	12	63	#	16	12	4*
16	380	76	6*	13	56	#	23	17	6*
17	383	76	6*	16	54	4*	20	15	5*
18	389	72	7*	15	50	3*	25	19	6*
19	394	65	4*	13	47	3*	33	25	8*

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 3-2
Lifetime and Past-week Prevalence of Other Tobacco Use, by Sex and Age, Canada, 1994

		Cigars or Pipes (%)		Chewing Tobacco (%)		Snuff (%)	
	Pop. Est. ('000)	Life	Week	Life	Week	Life	Week
Total, 10-19	**3,881**	**20**	**3**	**8**	**1**	**3**	**1**
10-14	1,949	20	4	7	1	4	2
15-19	1,932	20	2	10	1	3	1*
Males, 10-19	**1,986**	**26**	**4**	**13**	**2**	**5**	**1**
10-14	997	24	5	11	2*	5	2*
15-19	989	28	3	16	2*	5	1*
Females, 10-19	**1,896**	**14**	**2**	**3**	**0.3**	**2**	**1***
10-14	953	16	3	3	#	2*	1*
15-19	943	12	1*	3	#	2*	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 3-3
Number of Cigarettes Smoked, by Sex and Age, Current Smokers, Canada, 1994

	Current Smokers							Current Smokers Who Smoked In Week Before Survey	
		No. of Cigarettes Per Day							
	Pop. Est ('000)	<6	6-10	11-15	16-20	21-25	>25	Pop. Est ('000)	Average No. of Cigarettes
Total, 10-19	**580**	**27**	**28**	**21**	**10**	**9**	**6**	**523**	**9.9**
10-14	128	29	22	14*	8*	7*	19	107	6.5
15-19	452	26	30	22	10	9	2*	416	10.8
Males, 10-19	**290**	**26**	**27**	**21**	**8**	**10**	**8***	**266**	**10.4**
10-14	63	27*	23*	15*	#	#	21*	53	7.3
15-19	227	26	28	23	8*	11	4*	213	11.2
Females, 10-19	**290**	**27**	**29**	**207**	**11**	**8***	**5***	**257**	**9.4**
10-14	65	31	20*	13*	9*	9*	18*	53	5.7
15-19	225	27	32	22	12	7*	#	204	10.3

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-4
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Sex and Age, Past-week Smokers, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Total, 10-19	**3,881**	**83**	**2**	**15**	**9.9**
10-14	1,949	93	1	7	6.5
15-19	1,932	74	2	24	10.8
10-12	1,166	97	#	3	6.2
13-14	783	86	0.7*	13	6.6
15-17	1,149	78	2*	20	9.6
18-19	783	68	3*	29	12.0
Males, 10-19	**1,986**	**84**	**2**	**15**	**10.4**
10-14	997	93	1*	7	7.3
15-19	989	75	2*	23	11.2
10-12	596	97	#	3*	7.0
13-14	401	87	#	12	7.3
15-17	589	80	3*	18	9.6
18-19	400	67	#	31	12.6
Females, 10-19	**1,896**	**83**	**1**	**16**	**9.4**
10-14	953	93	#	7	5.7
15-19	943	74	3*	24	10.3
10-12	571	98	#	2*	5.4
13-14	382	85	#	14	5.8
15-17	560	76	2*	22	9.6
18-19	383	70	3*	27	11.2

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-5
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Province and Age, Past-week Smokers, Canada, 1994

	Pop. Est ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Canada, 10-19	**3,881**	**83**	**2**	**15**	**9.9**
10-14	1,949	93	1	7	6.5
15-19	1,932	74	2	24	10.8
10-12	1,166	97	#	3	6.2
13-14	783	86	1*	13	6.6
15-17	1,149	78	2*	20	9.6
18-19	783	68	3*	29	12.0
Newfoundland, 10-19	**93**	**79**	**3**	**19**	**9.7**
10-14	45	91	#	8	6.2
15-19	48	68	4	28	10.6
10-12	27	98	#	#	#
13-14	18	80	#	18	6.5
15-17	28	77	#	21	9.3
18-19	20	57	#	38	11.6
Prince Edward Island, 10-19	**20**	**83**	**#**	**15**	**10.1**
10-14	10	94	#	6	6.8
15-19	10	73	#	24	10.6
10-12	6	98	#	#	#
13-14	4	86	#	#	7.2
15-17	6	77	#	21*	9.8
18-19	4	67	#	28*	11.7
Nova Scotia, 10-19	**126**	**84**	**#**	**15**	**9.6**
10-14	62	93	#	6	6.5
15-19	64	75	#	24	10.4
10-12	37	98	#	#	#
13-14	25	86	#	13	6.9
15-17	37	82	#	17	10.4
18-19	27	65	#	33	9.5
New Brunswick, 10-19	**107**	**82**	**#**	**16**	**10.5**
10-14	52	93	#	7	5.7
15-19	55	73	#	25	11.6
10-12	31	99	#	#	#
13-14	21	84	#	15	5.9
15-17	32	75	#	24	11.8
18-19	23	69	#	26	11.3
Quebec, 10-19	**966**	**80**	**#**	**18**	**9.9**
10-14	478	88	#	12	7.7
15-19	487	72	3	25	10.8
10-12	278	96	#	4*	7.1
13-14	200	76	#	23	7.8

Table 3-5 (Cont'd)
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Province and Age, Past-week Smokers, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
15-17	**294**	**73**	**#**	**25**	**9.7**
18-19	194	70	#	26	12.3
Ontario, 10-19	**1,415**	**86**	**#**	**13**	**10.3**
10-14	712	96	#	4*	5.4
15-19	704	76	#	22	11.1
10-12	429	98	#	#	#
13-14	283	92	0.2*	7*	4.8
15-17	415	81	#	16	9.6
18-19	289	68	#	30	12.1
Manitoba, 10-19	**150**	**83**	**2**	**15**	**9.9**
10-14	75	94	#	6	4.7
15-19	75	73	#	25	11.0
10-12	45	98	#	#	#
13-14	30	87	#	12*	5.1
15-17	44	76	#	22	10.3
18-19	31	68	#	29	11.9
Saskatchewan, 10-19	**148**	**87**	**#**	**12**	**9.9**
10-14	77	94	#	5	6.9
15-19	71	80	#	19	10.7
10-12	46	98	#	#	#
13-14	30	88	#	11*	7.1
15-17	43	84	#	15	9.7
18-19	28	73	#	26	11.7
Alberta, 10-19	**387**	**84**	**#**	**15**	**9.7**
10-14	202	93	#	7	5.9
15-19	185	74	#	24	10.7
10-12	123	97	#	3*	#
13-14	78	87	#	12*	6.1
15-17	111	78	#	20	9.1
18-19	74	68	#	29	12.2
British Columbia, 10-19	**470**	**83**	**1**	**15**	**9.0**
10-14	238	93	#	7	5.3
15-19	232	74	#	24	10.0
10-12	144	98	#	#	#
13-14	94	86	#	13	5.6
15-17	138	78	#	20	8.7
18-19	94	67	#	30	11.2

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-6
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Language Usually Spoken at Home and Age, Past-week Smokers, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Total, 10-19	**3,881**	**83**	**2**	**15**	**9.9**
10-14	1,949	93	1	7	6.5
15-19	1,932	74	2	24	10.8
10-12	1,166	97	#	3	6.2
13-14	783	86	1*	13	6.6
15-17	1,149	78	2	20	9.6
18-19	783	68	3*	29	12.0
English, 10-19	**2,692**	**84**	**1**	**15**	**9.7**
10-14	1,346	94	0.4	5	5.6
15-19	1,346	73	2*	24	10.5
10-12	817	97	#	2*	5.7
13-14	529	89	#	10	5.6
15-17	795	79	3*	19	9.1
18-19	551	66	2*	32	11.7
French, 10-19	**865**	**78**	**2***	**20**	**10.2**
10-14	399	87	#	13	7.1
15-19	466	72	3*	25	11.4
10-12	227	96	#	4*	#
13-14	172	74	#	25	7.1
15-17	287	73	#	25	10.3
18-19	179	70	#	25	13.1
Other, 10-19	**324**	**93**	**#**	**6***	**12.0**
10-14	204	95	#	4*	10.6
15-19	120	91	#	9*	13.0
10-12	122	99	#	#	#
13-14	82	90	#	11	10.6
15-17	67	92	#	#	#
18-19	54	89	#	#	#

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-7
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Aboriginal Status and Age, Past-week Smokers, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Total, 10-19	**3,881**	**83**	**2**	**15**	**9.9**
10-14	1,949	93	1	7	6.5
15-19	1,932	74	2	24	10.8
10-12	1,166	97	#	3	6.5
13-14	783	86	1*	13	6.6
15-17	1,149	78	2	20	9.6
18-19	783	68	3*	29	12.0
Aboriginal, 10-19	**110**	**76**	**#**	**23**	**9.0**
10-14	72	85	#	15*	4.9
15-19	38	60	#	37*	11.3
10-12	48	91	#	#	#
13-14	24	72	#	27*	5.3
15-17	26	66	#	33*	9.5
18-19	12	47*	#	46*	14.0
Non-Aboriginal, 10-19	**3,738**	**84**	**2**	**15**	**10.0**
10-14	1,861	93	1	6	6.7
15-19	1,877	75	2	23	10.8
10-12	1,109	98	#	2*	6.7
13-14	752	86	#	13	6.6
15-17	1,111	78	2*	19	9.6
18-19	766	69	3*	28	11.9

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-8
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Academic Performance Compared with Peers and Age, 10- to 19-year- olds Attending School, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Total, 10-19	**3,607**	**86**	**1**	**13**	**8.7**
10-14	1,949	93	0.5	7	6.5
15-19	1,657	78	2*	20	9.5
Above average, 10-19	**1,221**	**90**	**2***	**8**	**9.0**
10-14	609	96	#	4*	6.2
15-19	612	84	3*	13	9.7
Average, 10-19	**2,150**	**84**	**1**	**15**	**8.7**
10-14	1,169	93	0.4	7	6.3
15-19	982	75	2*	24	9.4
Below average, 10-19	**204**	**74**	**#**	**25**	**8.7**
10-14	144	79	#	20	7.4
15-19	60	64	#	36*	10.1

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 3-9
Type of Smoker and Average Number of Cigarettes Smoked Daily, by Hours Worked Per Week and Age, 10- to 19-year-old Past-week Smokers Working at a Paid Job, Canada, 1994

	Pop. Est. ('000)	Type of Smoker (%)			Mean No. of Cigarettes
		Non-smoker	Former Smoker	Current Smoker	
Total, 10-19	**1,989**	**81**	**2**	**17**	**10.1**
10-14	996	90	1*	9	6.8
15-19	992	72	3*	26	11.1
Worked 1-9 hours, 10-19	**947**	**89**	**1***	**10**	**7.6**
10-14	653	92	#	8	6.9
15-19	294	83	#	16	8.3
Worked 10+ hours, 10-19	**938**	**72**	**3***	**26**	**11.1**
10-14	245	86	#	13	6.7
15-19	693	67	3*	30	11.7

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Chapter 4

Smoking Cessation

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Highlights

Methods
Definitions
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Number of Quit Attempts
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Implications for Future Monitoring and Further Research

References

Highlights

- A high percentage of all current smokers aged 10-19 years (81%) have ever seriously thought of quitting. Of those current smokers who have seriously thought of quitting, 82% have made at least one attempt to quit. Of those smokers who have tried to quit, 61% report having tried to quit in the six months preceding the survey. Sixty percent of current non-daily female smokers tried to quit in the six months prior to the survey.

- Taken together, almost 40% of current smokers, representing 226,000 youth aged 10-19, tried to quit in the six months before the survey. Another 2% of all youth (56,000 persons) are former smokers.

- Nineteen percent of all current smokers who have tried to quit have made five or more attempts to quit, and most smokers attempt to quit within two years of their first cigarette.

- Less established smokers reported more quit attempts and successfully quitting smoking for longer periods of time. For example, 45% of the current non-daily smokers quit for one month or more, compared to 26% of the current daily smokers. But the majority of smokers have not been able to successfully quit smoking for more than one month.

- The more close friends who smoke, the more likely are youth to report having thought about quitting. Youth aged 10-14 are less likely to have thought of quitting if their mother does not smoke and more likely to have tried quitting in the six months before the survey if their mother smokes.

- Those who did not try to quit in the six months before the survey are more likely to believe that smokers can quit anytime they want.

- These results suggest that programs and policies to support cessation should be directed to even the youngest smokers. Schools, organizations, and workplaces popular with youth would be natural settings for such initiatives. Measures that reduce daily smoking and amount smoked will support cessation, by making quit attempts more likely and more durable.

Methods

Definitions

Definitions of smokers used in this chapter are those established in Chapters 2 and 3. Specifically, current smokers include current daily smokers and current non-daily smokers; beginning smokers are those who have smoked in the 30 days preceding the survey but who have not smoked 100 or more cigarettes in their lifetime.

The items relevant to quitting and quit attempts include whether or not the individual has seriously thought of quitting (SS30, HH29, that is, School Survey Question 30, Household Survey Question 29; see Appendix A), whether they have ever tried to quit (SS31A, HH30), and whether the attempt was in the six months prior to the survey (SS33, HH33). These three questions were formatted to be answered sequentially. That is, only those who had seriously thought of quitting were asked whether they had tried to quit, and those who had tried to quit were asked to report whether they had tried in the six months preceding the survey. From the responses to these three questions, for all youth who had smoked in the 30 days before the survey (i.e., current daily, current non-daily, and beginning smokers), a quitting "history" variable was created. Youth were classified into those who had never thought seriously about quitting, those who had thought about it but not tried, those who had tried but not in the six months before the survey, and those who had tried in the six months prior to the survey. These groups could be called, respectively, confirmed smokers, potential quitters, attempted quitters (over six months ago), and recent attempted quitters. [a]

Unfortunately, there are no Youth Smoking Survey (YSS) data relevant to assessing, for individuals who are classified as former smokers or past experimental smokers, how long it has been since they smoked. Thus, it is not possible to establish how long such individuals have been able to maintain their "quit" status. Moreover, the numbers of former smokers are small (n = 299, see Chapter 3).

Characteristics of previous quit attempts, such as the number of quit attempts (SS31B, HH31), the age at first quit attempt (SS32, HH32) relative to the age of

a. While similar conceptually to the first four "stages of change," the YSS questions are not exactly the same as those used in research on the transtheoretical model of smoking cessation.

Table 4-A
Ever Seriously Thought About Quitting, by Type of Smoker, Sex, and Age, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

	Thought About Quitting (%)				
	All Smokers	All Current	Current Daily	Current Non-daily	Beginning
Total, 10-19	**79**	**81**	**79**	**84**	**74**
10-14	83	79	76	82	86
15-19	77	81	80	85	61
Males, 10-19	**77**	**80**	**78**	**82**	**71**
10-14	79	75	73	76	84
15-19	76	81	79	85	57
Females, 10-19	**80**	**82**	**80**	**86**	**77**
10-14	86	84	79	87	88
15-19	77	81	80	85	64

first cigarette (SS13, HH5), and the longest time they ever quit smoking (SS34, HH34), are summarized. It should be noted that when assessing the age of a first quit attempt, older youth who smoked a first cigarette at an early age (e.g., a 16-year-old who first smoked at age 11) have more years in which a first quit attempt can occur. Thus, the fact that relatively fewer of the older youth make first quit attempts closer to the age of a first cigarette could be a result of using cross-sectional data to examine this phenomenon. Further, interpretation of what constitutes a "quit attempt" may vary by age. For example, younger smokers (10- to 14-year-olds) who have attempted to quit are more likely than older smokers to not state the number of previous quit attempts. In addition, younger smokers who have attempted to quit generally report more quit attempts. This seems counterintuitive, given their relatively shorter experience with smoking.

Analyses also investigate the relationship between quit attempts and the smoking habits of important social influences – for example, father (SS35A, HH41), mother (SS37A, HH43), and close friends (SS42, HH47).

Finally, the relationships between recent quit attempts and certain health beliefs are summarized, specifically, beliefs about whether one would have to smoke many years to affect health (SS44A, HH49A); whether quitting smoking reduces health damage (SS44E, HH49E); whether people can become addicted to tobacco (SS44G, HH49G); and whether smokers can quit anytime they want (SS44J, HH49J).

The small number of former smokers and lack of information on successful quit attempts make the analyses of factors associated with successful quit attempts difficult.

Sample and Response

It should be noted that the sample sizes available for analysis of quitting are often relatively small. Analyses are often restricted to those who have smoked in the 30 days prior to the survey. If these data are further subdivided (e.g., by whether they tried quitting in the six months preceding the survey, by province, or by smoking habits of parents), there is limited power to detect even relatively large differences between subgroups. For example, there were only 2,119 individuals of all ages in the entire sample who reported having tried to quit in the six months preceding the survey. Consequently, caution needs to be exercised in interpreting the reported differences, and the reader is referred to Chapter 2, Tables 2-2, 2-3, and 2-4, which give approximate differences required for significance at the 0.05 level. Throughout this chapter, only two age groups (10-14, 15-19) are used, and sex differences are seldom reported, in order to maintain sample size.

In general, missing data for items discussed in this chapter, except for the stages of quitting, account for less than 10% of the total responses. The data presented are thus based on those for whom complete data were available for the specific items being analyzed.

Results

Stages of Quitting

Of all youth aged 10-19 who smoked in the 30 days preceding the survey, 79% have ever seriously thought of quitting (Table 4-A). Only 2% of youth are classified as former smokers (see Table 3-1).

For daily smokers and non-daily smokers, there is little difference in the percentages who have ever seriously thought of quitting (79% vs. 84%, respectively). Among beginning smokers, 74% claim to have ever seriously thought of quitting. This slightly lower rate in beginning smokers may reflect their relatively recent personal experience with smoking. For any age group, there does not appear to be any major difference between males and females in terms of the proportion of individuals who report having thought seriously of quitting (Table 4-A).

Thinking about quitting seems to decrease with age, from 83% of 10- to 14-year-olds to 77% of 15- to 19-year-olds (Table 4-A). The difference between the age groups is largely due to the higher relative numbers of beginning smokers at younger ages who have thought of quitting smoking compared with the older cohort of beginning smokers (86% in the younger vs. 61% in the older). Among all current smokers, the trend may be reversed. Slightly more older current smokers have thought of quitting (79% in the younger vs. 81% in the older).

Thus, we see that a relatively high fraction of current smokers have seriously thought of quitting *at some time* in the past and are potential future quitters. On the other hand, almost 20% of current smokers claim to have never seriously thought of quitting. They are, apparently, confirmed smokers.

For those who have seriously thought of quitting, a high percentage of current smokers have, in fact, attempted to quit in the past (Table 4-B). For youth aged 10-19 who smoked in the 30 days preceding the survey and who have ever seriously thought of quitting, 82% of current smokers have actually tried to quit. The rates are approximately the same in daily smokers and non-daily smokers (81% vs. 84%, respectively) and younger and older current smokers (84% and 81%, respectively). The rates appear to be different for males and females aged 10-14, but not for those aged 15-19. For 10- to 14-year-old males, 79% of current smokers claim to have tried to quit. The rate for females is higher (88%). Again, the percentages for beginning smokers are much lower.

When questioned on a quit attempt in the six months preceding the survey, of youth aged 10-19 who claimed to have ever tried to quit, 61% report trying to quit in the six months before the survey (Table 4-C). There are marked differences between daily (51%) and non-daily (74%) smokers in such recent quit attempts, but then differences are confined to smokers aged 15-19.

Among the younger smokers, there is some evidence of a difference in recent quit attempts between males and females. For males, 67% of all smokers, and for females, 77% of all current smokers, report having tried to quit in the six months before the survey.

For the 15- to 19-year-olds who have ever tried to quit, only 54% of the current smokers tried to quit in the previous six months, and this is lower among daily smokers (48%) than non-daily smokers (72%). Differences for males and females are also apparent.

Only 42% of female daily smokers report having tried to quit in the six months prior to the survey, compared with 80% of female non-daily smokers. The rates for male daily and male non-daily smokers are 54% and 65%, respectively (Table 4-C).

Table 4-1 (at end of chapter) summarizes quitting history as defined above under Methods. Of youth aged 10-19 who smoked in the 30 days preceding the

Table 4-B
Ever Tried to Quit, by Type of Smoker, Sex, and Age, Youth Who Have Smoked in the Past 30 Days and Who Have Ever Seriously Thought About Quitting, Canada, 1994

	Ever Tried to Quit (%)				
	All Smokers	All Current	Current Daily	Current Non-daily	Beginning
Total, 10-19	**72**	**82**	**81**	**84**	**47**
10-14	57	84	84	84	35
15-19	79	81	80	83	68
Males, 10-19	**72**	**80**	**79**	**81**	**48**
10-14	57	79	76	81	36
15-19	78	80	79	81	69
Females, 10-19	**72**	**84**	**82**	**87**	**46**
10-14	58	88	91	87	34
15-19	79	82	81	86	66

Table 4-C
Tried to Quit in the Past Six Months, by Type of Smoker, Sex, and Age, Youth Who Have Smoked in the Past 30 Days and Who Have Ever Tried to Quit, Canada, 1994

	Tried to Quit in Past 6 Months (%)				
	All Smokers	All Current	Current Daily	Current Non-daily	Beginning
Total, 10-19	**61**	**59**	**51**	**74**	**70**
10-14	72	77	76	77	64
15-19	57	54	48	72	76
Males, 10-19	**60**	**60**	**56**	**67**	**62**
10-14	67	72	73	72	55*
15-19	58	57	54	65	68
Females, 10-19	**62**	**58**	**46**	**81**	**76**
10-14	77	80	78	81	70
15-19	56	51	42	80	81

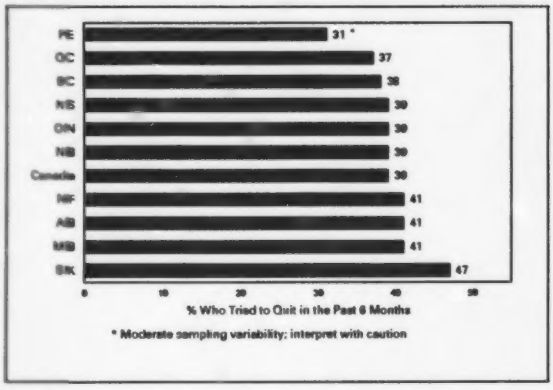
* Moderate sampling variability; interpret with caution

Table 4-D
Tried to Quit in the Past Six Months, by Amount Smoked, Sex, and Age, Youth Who Have Smoked in the Past 30 Days and Who Have Ever Tried to Quit, Canada, 1994

	Tried to Quit in Past 6 Months (%), by Number of Cigarettes Smoked Per Day						
	Total	1-5	6-10	11-15	16-20	21-25	25+
Total, 10-19	**64**	**75**	**63**	**52**	**40**	**50**	**68**
10-14	79	83	73	68	77	#	84
15-19	57	70	60	49	33	46	#
Males, 10-19	**64**	**72**	**61**	**64**	**38**	**54**	**58**
10-14	76	81	64	81	#	#	#
15-19	59	68	59	60	34	53	#
Females, 10-19	**64**	**78**	**65**	**43**	**41**	**47**	**82**
10-14	81	85	83	55	#	#	84
15-19	56	73	60	40	32	#	#

Data suppressed due to high sampling variability

Figure 4-A
Attempts to Quit Smoking in the Previous Six Months, by Province, Current Smokers Aged 10-19, Canada, 1994



survey, 21% claim to have never seriously thought of quitting (confirmed smokers), 14% claim to have thought of quitting but not tried (potential quitters), 21% have tried but not in the six months before the survey (attempted quitters), and 35% did, in fact, try to quit in the six months prior to the survey (recent attempted quitters). Beginning smokers are most likely to report never having thought seriously of quitting (26%),, while non-daily smokers are most likely to report a recent attempt to quit (52%). The largest difference between non-daily and daily smokers reporting a recent quit attempt occurs for 15- to 19-year-old females: 59% of non-daily smokers compared to 27% of daily smokers report having tried to quit in the six months preceding the survey.

Collectively, these findings indicate that among current smokers, it is the non-daily smokers who are most likely to have tried to quit in the six months before the survey. This is especially true of female smokers. The data indicate that the more firmly the smoking habit is established, the less likely is the individual to have attempted to quit in the six months preceding the survey.

To examine this further, smokers making a recent quit attempt were classified by the number of cigarettes they smoked per day (Table 4-D). There is a clear relationship between the amount smoked and the proportion reporting having tried to quit in the six months prior to the survey. For those smoking five or fewer cigarettes per day, 75% report a recent quit attempt, and this percentage decreases with the number of cigarettes smoked, to a low of 40% for youth smoking 16-20 cigarettes per day. It then increases for heavier smokers. This pattern exists for both males and females.

Provincial Rates

Figure 4-A presents the percentage of all current smokers aged 10-19 who tried to quit in the six months preceding the survey for all 10 provinces and Canada. There is little variation among the provinces, with rates being approximately 40% in all provinces (except Saskatchewan). There was no difference between males and females observed in any province (data not shown). While the rates appear to be higher in 10- to 14-year-olds than in 15- to 19-year-olds (data not shown), the numbers of current smokers available for analysis at the provincial level are too small, especially for 10- to 14-year-olds, to allow firm conclusions to be drawn.

Number of Quit Attempts

Of all youth aged 10-19 who have ever tried to quit, 22% of current smokers claim to have made only one attempt to quit smoking, but almost as many (19%) have made five or more such attempts. There is little sex difference in number of quit attempts (Table 4-2).

Older youth appear much more likely than the younger group to have made only a single attempt to quit smoking, but age comparisons are complicated because the "not stated" category is much higher for the 10- to 14-year-olds, perhaps reflecting their relative inexperience with quitting or their uncertainty about what constitutes a "quit attempt" (see Methods and Discussion).

At least 50% of youth report that they made their first quit attempt within two years of having first smoked a whole cigarette (Table 4-3). This pattern seems relatively constant regardless of the age at which youth report smoking their first whole cigarette. Likewise, the data show similar patterns for both males and females. (The issue of assessing data on age of first quitting is discussed in the Methods and Discussion sections.)

Table 4-4 indicates that for youth aged 10-19 who have ever tried to quit smoking, the larger proportion (35%) report that the longest time was between two and seven days. In total, 65% of the current smokers who had ever tried to quit smoking reported that the longest time they had quit was one month or less. The non-daily smokers generally report having successfully quit smoking for longer periods of time. For example, of the current non-daily smokers, 45% indicated that they had quit for one month or more, compared to 26% for the current daily smokers. If we examine youth aged 15-19, which would include those with the longest smoking experiences, a similar pattern emerges. Of those who report being current smokers but not smoking daily, 52% claim to have quit for one month or longer at some point in the past. The corresponding rate for those who report being current daily smokers is only 29%. This is evidence that those individuals in whom the smoking habit is more firmly established report shorter quit durations.

For individuals who report smoking five or fewer cigarettes per day and who have tried to quit, 48% report having quit smoking for more than one month in the past. For those who smoke 16-20 cigarettes per day, slightly over half this proportion (26%) report ever having quit for more than one month (data not shown).

As noted above, there is limited information available on individuals who have successfully quit (i.e., for at least six months). For individuals aged 15-19, 54% of the past experimental smokers claim to have quit for at least one year at some point in the past. Thirty-two percent of former smokers claim that the longest time they had quit was at least one year (data not shown).

Only 6% of past experimental smokers report that they might try smoking within the month following the survey (Table 4-5). Seventy-three percent said they would not. Twenty-one percent responded that they did not know. These rates can be compared to the rates in lifetime abstainers aged 10-19. For these individuals, 92% reported that they would not try smoking in the month after the survey, and 7% indicated that they did not know. Thus, while there are reports of successful long-term quitting in former and past experimental smokers, there are indications of less certainty in their decisions to quit smoking. This is especially true among the younger age group.

When past experimental smokers aged 10-14 were asked whether they might try smoking within the month following the survey, 34% responded that they did not know (Table 4-5). This compares to 9% of the older age group. There is some indication, as well, that for the lifetime abstainers, the younger individuals are less sure about whether or not they might try smoking within the month following the survey. While 88% of individuals aged 10-14 who are lifetime abstainers said they would not smoke within the month after the survey, 11% were unsure. For individuals aged 15-19 who classified themselves as lifetime abstainers, 98% claimed they would not try smoking within the month following the survey, and only 1% were unsure.

Relationships of Quit Attempts to Other Variables

Social Influences of Parents and Close Friends

Social influence variables (e.g., smoking habits of parents, close friends, and others) are examined in detail in Chapter 5 for their relationship to the smoking status of youth. In this section, the smoking habits of the father, mother, and close friends of the youth are related to the quitting history variable described above. There is no relationship between the smoking habits of the father and quitting history for youth. This is equally true of both age groups (Table 4-6) and both sexes (data not shown).

Similarly, youth are no more likely to report never having thought of quitting if their mother does not smoke than if their mother smokes (Table 4-7). However, youth report being more likely to have tried to quit in the six months prior to the survey if their mother smokes than if their mother does not smoke. (These results are perhaps counterintuitive; however, the number of current smokers aged 10-14 is relatively small, and the differences for youth aged 10-14 who have never considered quitting are just significant at the 5% level.) There are no systematic differences between the sexes (data not shown).

Table 4-E
Youth Who Believe that One Would Have to Smoke Many Years to Affect Health, by Whether They Tried to Quit in the Six Months Prior to the Survey, Sex, and Age, Youth Who Have Ever Tried to Quit, Canada, 1994

	Believe that One Would Have to Smoke Many Years to Affect Health (%)		
	Total	Tried to Quit	Did Not Try to Quit
Total, 10-19	**22**	**23**	**21**
10-14	28	28	35
15-19	19	20	18
Males, 10-19	**27**	**31**	**21**
10-14	36	37	43
15-19	23	28	18
Females, 10-19	**17**	**16**	**20**
10-14	21	21	#
15-19	16	13	19

Data suppressed due to high sampling variability

Table 4-F
Youth Who Believe that Quitting Smoking Could Reduce Health Damage, by Whether They Tried to Quit in the Six Months Prior to the Survey, Sex, and Age, Youth Who Have Ever Tried to Quit, Canada, 1994

	Believe that Quitting Smoking Could Reduce Health Damage (%)		
	Total	Tried to Quit	Did Not Try to Quit
Total, 10-19	**66**	**67**	**67**
10-14	52	56	50
15-19	72	74	70
Males, 10-19	**69**	**72**	**71**
10-14	53	59	52
15-19	76	79	74
Females, 10-19	**62**	**63**	**63**
10-14	51	54	47
15-19	67	69	66

Table 4-8 depicts the relationship between the number of close friends who smoke and quitting history. The greater the number of close friends who smoke, the more likely are youth to report having thought of quitting. This pattern holds for 15- to 19-year-olds and is similar for both sexes (data not shown). Sampling variability precludes interpretation of the pattern for 10- to 14-year-olds.

Knowledge and Beliefs About Health Effects

Chapters 6 and 7 discuss beliefs and knowledge of youth with respect to the health effects of smoking. In this section, the association between quitting attempts and beliefs about the health effects of smoking is addressed.

Individuals were asked to list the number of health problems that are related to cigarette smoking. Across all ages, approximately 15% of youth report four or more health problems associated with smoking (data not shown). Awareness of health problems associated with smoking does not appear to be related to whether or not the individual has ever tried to quit smoking. This is true for both males and females and for all age groups (data not shown).

In contrast, there is some association between quitting history and belief about the health benefits of quitting, among specific age and sex groups. When asked whether or not one would have to smoke many years before seeing effects on health, 23% of youth aged 10-19 who have tried recently to quit (compared to 21% who have not tried) respond yes (Table 4-E). Differences between the sexes are observed, however. For males aged 10-19, 31% who have tried to quit smoking in the six months prior to the survey (compared to 21% who have not tried) claim that one would have to smoke many years to affect health. For females, there was only a small difference in opinion between those who had actually tried to quit smoking and those who had not tried to quit smoking in the six months prior to the survey (16% and 20%, respectively).

When asked whether quitting smoking could reduce health damage, 67% of youth aged 10-19 agree (Table 4-F), with no overall difference between youth recently attempting to quit and those not. Younger respondents (age 10-14) are less likely to agree to this item, and, for these youths, there is some indication that those who have tried to quit in the preceding six months are more likely to agree. For example, 59% of males and 54% of females aged 10-14 who have tried to quit agree that quitting smoking reduces health damage compared to 52% of males and 47% of females who have not tried to quit. Moreover, 20% of youth aged 10-14 do not know whether quitting smoking would reduce health damage (data not shown).

For those aged 15-19, 72% of youth believe that quitting smoking can reduce health damage (Table 4-F). For the oldest youth (18-19 years old) of both sexes, there is a strong association between their response to this item and whether they have tried to quit in the preceding six months (data not shown). For males and females, 85% and 76%, respectively, of those who have tried to quit believe quitting smoking reduces health damage, while 70% and 64%, respectively, believe that it does not.

When asked if people can become addicted to tobacco, 93% of all youth who have tried to quit agree. There are no differences between those who have tried to quit recently and those who have not, between age groups, or between sexes (data not shown).

When asked if they believe smokers can quit smoking anytime they want, 22% of all those who had tried to quit in the six months preceding the survey agree (Table 4-G). In general, those who have actually tried to quit in the preceding six months are less likely to agree. For the 15- to 19-year-olds, a curious interaction is observed. Those aged 15-17 are less likely to respond yes if they have tried to quit in the six months before the survey (22%), compared to those who have not tried to quit (34%). For those aged 18-19, the rates are reversed. That is, 29% of those who have tried to quit and 25% of those who have not tried to quit respond in the affirmative. The trend is particularly noticeable in males: 33% respond yes if they have tried to quit compared to 23% who have not tried (data not shown).

Table 4-G
Youth Who Believe that Smokers Can Quit Anytime They Want, by Whether They Tried to Quit in the Six Months Prior to the Survey, Sex, and Age, Youth Who Have Ever Tried to Quit, Canada, 1994

	Believe that Smokers Can Quit Anytime They Want (%)		
	Total	Tried to Quit	Did Not Try to Quit
Total, 10-19	**24**	**22**	**28**
10-14	16	15	16
15-19	28	25	30
Males, 10-19	**25**	**23**	**27**
10-14	18	17	#
15-19	28	27	28
Females, 10-19	**23**	**20**	**29**
10-14	13	11	#
15-19	28	24	31

Data suppressed due to high sampling variability

Discussion

The YSS data indicate that significant numbers (226,000) of current smokers attempted to quit smoking in the six months prior to the survey. Further, the majority of current smokers have attempted to quit smoking at some time during their history as smokers. Thus, the data suggest that at any point in time, there are a significant number of Canadian youth who are thinking about or attempting to quit smoking. What is missing from these data is the number who were successful in quitting in the previous six months. However, the data also indicate that many adolescents have little success in quitting. The majority of current smokers report that the longest time that they have successfully quit smoking is between two and seven days.

As noted earlier, older youth who started smoking at an early age have more years in which a first quit attempt can occur, but the cross-sectional nature of the data does not permit analysis of how this relates to the phenomenon of fewer older youth making first quit attempts close to the age of first cigarette. Neither do the cross-sectional YSS data permit causal inferences. Finally, absence of these variables in earlier surveys precludes discussion of trends.

Implications for Regulation and Legislation

Although this chapter did not investigate the impact of regulations (e.g., restrictions on public smoking) on quit attempts, it is apparent that attempts to quit are more likely among young, non-daily smokers who smoke relatively few cigarettes daily. Thus, regulation and legislation that discourage daily and heavy smoking and, more generally, limit the numbers of confirmed smokers would be beneficial with respect to quitting. Since both young, beginning smokers and older, established smokers do not give much thought to quitting, it appears that there is a relatively small "window" for measures to support cessation during the transition from beginning confirmed smoker. This emphasizes the importance of regulatory measures that are constantly in place and consistently enforced (see also Chapter 9).

Implications for Education and Message Promotion

The majority of Canadian youth do not believe that one has to smoke many years to affect health, nor do they believe that smokers can quit anytime they want. Further, the majority believe that quitting smoking can reduce health damage. Such beliefs should be continually reinforced.

However, there is still a substantial proportion of Canadian youth smokers who hold beliefs that are counter to the existing medical knowledge concerning health effects and the ease of quitting smoking. More importantly, these beliefs may discourage quit attempts. The health knowledge and belief items indicate several areas in which those who have tried to quit and those who have not may differ. Those who have not attempted to quit recently are more likely to believe that smokers can in fact quit anytime they want and are less likely to believe that quitting smoking reduces health damage.

From a health promotion perspective, attempting to reach adolescent smokers who are thinking about quitting poses many challenges. However, these data reveal that adolescent smokers make relatively frequent attempts to quit, with only brief periods of success. This suggests that there are numerous opportunities to interact with youth to promote the cessation of smoking, but the opportunities may be short-lived. Only recently have health promotion material or programs been developed (like Health Canada's Quit 4 Life) that could be used to help adolescent smokers sustain quit attempts or to support them in moving from the belief that quitting will reduce risk to acting on it. [1] Further, we know very little about the type of programming (e.g., individual or group), the best providers (e.g., self-help, teachers, health personnel, or other youth), or the best setting (e.g., school-based, clinic-based) for such efforts. [4]

Implications for Future Monitoring and Further Research

The analyses suggest several items of potential value for inclusion in a future YSS. These include profiles of youth who have successfully or not successfully quit smoking, more detail related to stages of the quitting process, including duration of various processes, and the relation of cessation attempts to legislative, educational, or other programming. Since quitting smoking in youth appears to involve many quit attempts of short duration, longitudinal studies may prove more useful in fully documenting cessation in youth and could avoid age-related problems of recall and definitions of what constitutes a quit attempt.

There has been considerable research on smoking onset and factors that are related to taking up smoking by youth. However, there has been relatively little research on the predictors of youth cessation. In a recent review of the literature, Santi [4] located only 10 studies published since 1983 that focus on cessation. Studies of cessation are difficult to undertake because (a) they require longitudinal data if prediction of cessation is the aim, (b) panel data in which longitudinal cohorts are assessed at regular intervals will miss many episodes of short-term cessation (unless the period of assessment is very short), and (c) the number of adolescents who are current smokers may be less than one third of a cohort of adolescents, thus requiring large sample sizes.

In studies of smoking cessation in adults, several stages of behaviour change have been identified. [3,5] These include precontemplation, contemplation, preparation, action, and maintenance. Relapse to smoking can occur at the action or maintenance stage. These stages have been defined for adults, and there is a need to examine if and how youth pass through these stages.

Since youth have smoked for shorter periods of time, and since they may be more spontaneous in their decisions, it has been suggested [2] that youth cycle through stages quickly, possibly missing certain stages altogether. Data from the YSS are available to examine the proportion of adolescents in only certain of these stages of change. The cross-sectional data are not adequate for examining movement between stages or for examining factors associated with such movement. However, there are some data that enable the estimation of the proportion and numbers of youth at various ages and by sex who have contemplated quitting or who may have attempted to quit smoking. Unfortunately, the data from the YSS are not rich enough to help construct profiles of cigarette smokers who have successfully quit and cigarette smokers who have not successfully quit. Such data would be available only through longitudinal studies.

To this point, there has been little effective health promotion programming for adolescents who wish to quit smoking. Recent reviews of the literature on the efficacy of smoking cessation programs [1] and on factors associated with cessation in youth [4] indicate that

both of these areas are ripe for research. Since many adolescents dabble with smoking at some time from age 10 to age 20, and since many individuals go on to become daily smokers (see Chapter 3), there is a strong need for effective programming aimed not only at non-smoking youth, but also at those who smoke.

However, as these data indicate, as the habit becomes more firmly established, youth are less inclined to contemplate quitting. Thus, there is the need to be able to intervene effectively with youth when the opportunities arise. Research to identify these opportunities and to develop effective individual and group interventions is needed.

Related to the above, we need a better idea of what adolescents of various ages and levels of experience with smoking consider a "quit attempt" and whether different perceptions of what this is or what it requires relate to successful maintenance. We also need a better understanding of the transitional phase of current non-daily smoking. This may be a phase leading to daily smoking or a phase after daily smoking leading to quitting. If it is primarily a phase before daily smoking and, therefore, before physical addiction, the number of quit attempts in this phase suggests that it is still difficult to quit. Is it difficult to quit because of inexperience (i.e., they do not know how), motivation (i.e., they are not serious about quitting), lack of social support, etc.? Finally, perhaps reporting quitting is the socially desirable response for a smoker who is not yet committed. Whatever the reasons might be, it is important to find effective methods to support adolescents who want to quit at this stage.

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Table 4-1
Stages of Quitting, by Type of Smoker, Age, and Sex, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

		Stages of Quitting (%)				
	Pop. Est. ('000)	Never Thought of Quitting	Thought of Quitting But Not Tried	Tried But Not in Past 6 Months	Tried in Past 6 Months	Not Stated[a]
All Smokers, 10-19	**836**	**21**	**14**	**21**	**35**	**10**
All current	580	19	14	26	39	f
Current daily	387	21	15	31	33	f
Current non-daily	193	16	12*	17	52	f
Beginners	256	26	13	8*	24	30
10-14	266	17	11	10	34	28
All current	128	21	10*	13*	51	5*
Current daily	46	24*	12*	14*	48	f
Current non-daily	82	18*	9*	13*	53	7*
Beginners	138	14*	11*	6*	19	50
15-19	570	23	15	26	35	f
All current	452	19	15	30	35	f
Current daily	341	20	16	33	30	f
Current non-daily	111	15*	14*	20*	51	f
Beginners	118	39	15*	9*	31	f
All Male Smokers, 10-19	**403**	**23**	**15**	**20**	**33**	**9**
All current	290	20	15	25	38	f
Current daily	188	21	17	27	35	f
Current non-daily	102	18*	13*	21*	45	f
Beginners	113	29	13*	9*	21*	28
10-14	123	21	12*	10*	30	27
All current	63	25*	12*	13*	43	f
Current daily	24	27*	f	f	40*	f
Current non-daily	39	24*	f	f	44	f
Beginners	61	16*	13*	f	17*	47
15-19	279	23	16	24	35	f
All current	227	19	16	28	37	f
Current daily	164	21	16*	29	34	f
Current non-daily	63	15*	16*	25*	45	f
Beginners	52	43*	f	f	27*	f

Table 4-1 (Cont'd)
Stages of Quitting, by Type of Smoker, Age, and Sex, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

		Stages of Quitting (%)				
	Pop. Est. ('000)	Never Thought of Quitting	Thought of Quitting But Not Tried	Tried But Not in Past 6 Months	Tried in Past 6 Months	Not Stated[a]
All Female Smokers, 10-19	**433**	**20**	**13**	**21**	**36**	**11**
All current	290	18	13	28	40	#
Current daily	199	20	14	35	31	#
Current non-daily	91	14*	10*	13*	60	#
Beginners	143	23	12*	7*	27	31
10-14	142	14*	9	9*	38	30
All current	65	16*	9	13*	59	#
Current daily	22	21*	#	#	56*	#
Current non-daily	43	13*	#	#	61	#
Beginners	77	12*	9*	#	21*	53
15-19	291	23	15	27	34	#
All current	225	19	14*	33	34	#
Current daily	177	20	15*	38	27	#
Current non-daily	48	#	#	#	59	#
Beginners	66	36*	16*	#	34*	#

Note: Percentages may not add to 100% across rows due to inconsistent responses.

a. Individuals who answered yes to "Have you ever thought of quitting?" but did not specify whether they had tried.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 4-2
Number of Lifetime Quit Attempts, by Sex and Age, Current Smokers Who Have Ever Tried to Quit, Canada, 1994

	Pop. Est. ('000)	Number of Attempts (%)				
		1	2	3-4	5+	Not Stated
Total, 10-19	**383**	**22**	**26**	**26**	**19**	**7**
10-14	86	14	19	24	23	20
15-19	197	25	28	27	18	2
Males, 10-19	**184**	**24**	**28**	**25**	**18**	**5**
10-14	37	12	22	24	21	21
15-19	147	27	29	25	18	1
Females, 10-19	**199**	**21**	**25**	**28**	**20**	**6**
10-14	48	15	17	24	27	17
15-19	150	23	27	29	19	2

Table 4-3
Age at First Quit Attempt, by Age When First Smoked a Whole Cigarette, Current and Beginning Smokers, Canada, 1994

Age at First Quit Attempt	Pop. Est. ('000)	Age First Smoked a Whole Cigarette (%)									
		≤10	11	12	13	14	15	16	17	18	19
≤10	23	90	–	–	–	–	–	–	–	–	–
11	29	66	31	–	–	–	–	–	–	–	–
12	51	33	33	30	–	–	–	–	–	–	–
13	75	19	20	35	26	–	–	–	–	–	–
14	84	9	9	30	31	20	–	–	–	–	–
15	104	6	6	12	20	33	22	–	–	–	–
16	112	6	#	10	18	32	20	12	–	–	–
17	72	#	#	12	16	17	26	19	6	–	–
18	45	-	#	#	#	#	19	29	16	6	–
19	16	#	-	#	#	#	#	#	#	#	#

Note: Percentages may not add to 100% across rows due to inconsistent responses.

Data suppressed due to high sampling variability

- Data not available

Table 4-4
Longest Time Successfully Quit, by Type of Current Smoker, Age, and Sex, Youth Who Have Ever Tried to Quit, Canada, 1994

		Longest Time Successfully Quit (%)						
	Pop. Est. ('000)	≤1 day	2-7 days	8-31 days	1-3 months	4-6 months	7-12 months	>1 year
Total Current Smokers, 10-19	**383**	**6**	**35**	**24**	**16**	**9**	**4**	**3**
Daily	247	8	41	23	14	6	3	3
Non-daily	136	3	23	26	20	14	6	5
10-14	86	9	39	19	13	10	#	#
Daily	29	17	56	#	#	#	#	#
Non-daily	57	#	30	24	14	14	#	#
15-19	297	5	34	26	17	9	5	3
Daily	219	7	39	25	15	7	#	3
Non-daily	79	#	18	27	25	15	#	#
Total Male Current Smokers, 10-19	**184**	**6**	**34**	**24**	**13**	**11**	**5**	**3**
Daily	116	9	39	23	13	7	#	#
Non-daily	68	3	26	26	13	17	#	#
Total Female Current Smokers, 10-19	**199**	**6**	**35**	**24**	**19**	**8**	**3**	**3**
Daily	131	7	43	23	15	5	#	#
Non-daily	68	#	20	25	28	12	#	#

Data suppressed due to high sampling variability

Table 4-5
Considering Smoking in the Next Month, by Experience with Smoking, Sex, and Age, Canada, 1994

	Smoke Next Month (%)					
	Past Experimental			Lifetime Abstainer		
	Yes	No	Don't Know	Yes	No	Don't Know
Total, 10-19	**8**	**73**	**21**	**1**	**92**	**7**
10-14	7	59	34	1	88	11
15-19	5	87	9	1	98	1
Males, 10-19	**7**	**74**	**19**	**1**	**93**	**6**
10-14	6	65	28	1	89	10
15-19	#	82	11	1	98	1
Females, 10-19	**4**	**73**	**23**	**1**	**92**	**7**
10-14	7	52	41	1	88	11
15-19	#	92	#	1	98	#

Data suppressed due to high sampling variability

Table 4-6
Stages of Quitting, by Smoking Habits of Father and Age, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

		Stages of Quitting (%)				
	Pop. Est. ('000)	Never Thought of Quitting	Thought of Quitting But Not Tried	Tried But Not in Past 6 Months	Tried in Past 6 Months	Not Stated[a]
Total, 10-19	**886**	**21**	**14**	**20**	**35**	**10**
Father smokes	377	22	13	21	35	10
Father does not smoke	452	20	14	20	35	11
10-14	310	17	10	10	36	27
Father smokes	140	19	10*	10*	36	25
Father does not smoke	156	15	10*	10*	36	29
15-19	576	23	15	26	34	#
Father smokes	237	24	14	27	34	#
Father does not smoke	296	23	16	25	34	#

Note: Percentages may not add to 100% due to inconsistent patterns of response.

a. Individuals who answered yes to "Have you ever thought of quitting?" but did not specify whether they had tried.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 4-7
Stages of Quitting, by Smoking Habits of Mother and Age, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

		Stages of Quitting (%)				
	Pop. Est. ('000)	Never Thought of Quitting	Thought of Quitting But Not Tried	Tried But Not in Past 6 Months	Tried in Past 6 Months	Not Stated[a]
Total, 10-19	**886**	**21**	**14**	**20**	**35**	**10**
Mother smokes	356	20	15	18	38	8
Mother does not smoke	516	22	12	21	33	12
10-14	**310**	**17**	**10**	**10**	**36**	**27**
Mother smokes	130	17	11*	11*	40	21
Mother does not smoke	175	16	10*	8*	34	32
15-19	**576**	**23**	**15**	**26**	**34**	**#**
Mother smokes	226	21	18	22	38	#
Mother does not smoke	341	24	14	28	33	#

a. Individuals who answered yes to "Have you ever thought of quitting?" but did not specify whether they had tried.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 4-8
Stages of Quitting, by Smoking Habits of Friends and Age, Youth Who Have Smoked in the Past 30 Days, Canada, 1994

		Stages of Quitting (%)				
Number of Friends Who Smoke	Pop. Est. ('000)	Never Thought of Quitting	Thought of Quitting But Not Tried	Tried But Not in Past 6 Months	Tried in Past 6 Months	Not Stated[a]
Total, 10-19	**836**	**21**	**14**	**20**	**35**	**10**
0	40	26*	#	#	30*	27*
1	89	27*	14*	14*	28	17*
2	118	23	11*	18*	35	14*
3-4	239	20	16	21	33	10*
5+	372	18	14	23	39	5*
10-14	**295**	**16**	**10**	**9**	**37**	**27**
0	16	#	#	#	#	59*
1	43	14*	#	#	36*	35*
2	42	17*	#	#	31*	35*
3-4	76	13*	12*	10*	37	28*
5+	116	20*	11*	11*	42	16*
15-19	**568**	**23**	**15**	**28**	**34**	**#**
0	24	39*	#	#	38*	#
1	46	39*	18*	22*	21*	#
2	77	26*	12*	22*	37	#
3-4	163	23	18*	25	31	#
5+	256	17	15	29	38	#

a. Individuals who answered yes to "Have you ever thought of quitting?" but did not specify whether they had tried.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Chapter 5

Social Influences

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References

Highlights

- The smoking behaviour of youth is strongly influenced by their social circle. In particular, the greater the number of close friends who smoke, the more likely are youth to smoke. Further, the greater the number of smokers who live in the youth's home, the more likely is the youth to smoke.

- When both parents smoke, youth are more likely to smoke than when only one parent or neither parent smokes. If only one parent smokes, the sex of the smoking parent does not seem to matter for males, but it does for females. When only one parent smokes, females are more likely to smoke if it is the mother who smokes. Amount smoked daily is similarly associated with the smoking habits of parents.

- The smoking habits of youth are also related to the smoking habits of teachers and whether school rules on smoking are violated. Smokers are more likely to report that school rules are violated.

- These results suggest that regulations and education directed at youth in schools and other locations that youth frequent, such as shopping malls, may be particularly important for curbing smoking. Such measures would simultaneously impact the smoker and his or her supportive social milieu.

Methods

In this chapter, data from the Youth Smoking Survey (YSS) are examined to determine the degree and the nature of the association between cigarette smoking in adolescents and the smoking habits of friends, parents, and other potentially important influences in the youth's social environment.

Definitions

The basic definitions described earlier (see Chapters 2 and 3) are used to classify type of smoker. In particular, the effects of social influences are examined for current smokers, both daily and non-daily, and the important category of beginning smokers (i.e., those who smoked in the 30 days prior to the survey but have not smoked more than 100 cigarettes in their lifetime).

Variables that provide the youth's report of the current smoking habits of the father (SS35A, HH41, that is, School Survey Question 35A and Household Survey Question 41; see Appendix A) and the current smoking habits of the mother (SS37A, HH43) are examined for an association with the smoking habits of the youth. A variable that combines the current smoking habits of the father and mother was created to examine the influence of situations in which both parents smoke, the father smokes but the mother does not, the mother smokes but the father does not, and neither parent smokes. Variables that describe whether either parent has *ever* smoked (SS35B, HH42 for the father, and SS37B, HH44 for the mother) are also examined. The opinions of the father and mother concerning the youth's smoking behaviour (SS36, HH27, and SS38, HH28, respectively) are also summarized to describe the nature and degree of support from parents for the smoking decisions of the youth. Finally, one measure of the degree of acceptance of the smoking habit and/or the degree to which youth are willing to take risks to smoke is whether they have ever smoked in their home. The relationship between ever having smoked at home (SS40, HH26) and smoking status was examined to investigate this.

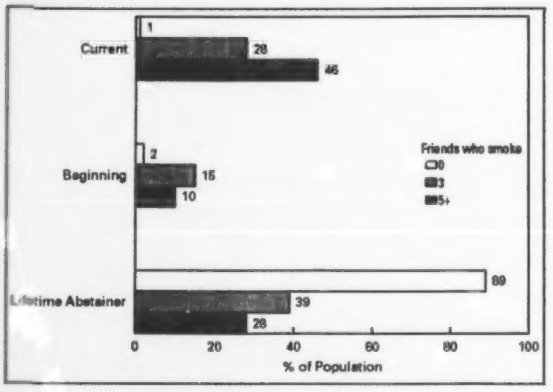
The smoking habits of close friends are also assessed in the YSS. The youth's report of the number of close friends who smoke (SS42, HH47) and the number of close friends (SS41, HH46) are examined in this chapter.

Youth also can experience social pressure to smoke from others (e.g., siblings or other relatives) who smoke in the home environment. An item measuring the total number of smokers in the home (not including the youth) was available for analysis and is related to the smoking habits of the youth.

Social pressures to smoke can also be exerted by those outside the home. This was examined in this chapter by relating the youth's responses to the item that asked for an estimate of the number of teachers who smoke in the youth's school (SS60, HH70) to the self-reported smoking status of the youth. For this analysis and that described below, only those youth actually in school are used. Finally, an indirect measure of the influence of the school environment on youth smoking was obtained from perceptions of student compliance with school rules on smoking (SS59, HH68).

It should be noted that the data on the smoking habits of parents, friends, and others both inside and outside the home were obtained from the youth's own reports of the smoking habits of these social influences. Similarly, the data on the smoking habits of the youth

Figure 5-A
Types of Smoker, by Number of Close Friends Who Smoke, Age 10-19, Canada, 1994



are based on his/her self-report of these habits. It is very possible that smokers and non-smokers perceive smoking differently. Smokers, particularly young smokers, may be more observant of smokers in their environment. Alternatively, smokers may be more likely to report that others smoke from a sense of not wishing to appear to be engaging in an act that is socially unacceptable. Consequently, when examining differences between smokers and non-smokers on issues such as whether teachers smoke or smokers obey school rules, issues of validity of the responses must be considered.

Sample and Response

In general, missing data for items discussed in this chapter accounted for less than 10% of the total responses. Notable exceptions are reports of the number of teachers who smoke and compliance with school rules, for which the "don't know" responses are presented. Otherwise, the data presented are based on those for whom complete data were available.

Results

Close Friends' Smoking Behaviour

Table 5-1 (at end of chapter) provides a summary of the relationship between the smoking habits of youth and their close friends. For all youth aged 10-19, 42% report that none of their close friends smokes, while 19% report having five or more close friends who smoke. A strong association between the smoking habits of close friends and those of the youth in the YSS is evident. For current smokers, only 2% report that none of their good friends smoke, while 51% report having five or more close friends who smoke.

For beginning smokers, only 10% report that none of their close friends smoke, while 27% report having five or more close friends who smoke. In sharp contrast, 59% of lifetime abstainers report having no close friends who smoke, and only 10% report having five or more close friends who smoke.

Some differences are apparent between ages. Specifically, lifetime abstainers are less likely to report having no close friends who smoke as they become older. However, the association is still strong for older youth. While 29% of all youth aged 15-19 report having no close friends who smoke, the rate for lifetime abstainers is 45%. There is no difference between males and females in either age group; the association is equally evident for both sexes (Table 5-1).

Viewed another way, of youth aged 10-19 who report that none of their close friends smokes, only 1% are currently smoking, 2% are beginning to smoke, and 89% are lifetime abstainers (Fig. 5-A). At the other end of the spectrum are those youth aged 10-19 who indicate that five or more of their close friends smoke, where 46% report being a current smoker, 10% are beginning smokers, and only 28% are lifetime abstainers. In looking for a demarcation line between the number of close friends who smoke and the chance of being a smoker, for individuals who report having two close friends who smoke, 15% are currently smoking, 11% are beginning smokers, and 54% are lifetime abstainers. For those individuals who report having three close friends who smoke, 28% are currently smoking, 15% are beginning smokers, and 39% are lifetime abstainers.

The relationship between youth smoking and number of friends who smoke remains strong for all age groups. For example, of the 201,000 individuals aged 10-14 indicating that five or more of their close friends smoke, 32% are current smokers, 18% are beginning smokers, and 43% are lifetime abstainers (data not shown). At the other end of the spectrum are the 945,000 youth aged 10-14 who are estimated to have no close friends who smoke. Of those, only 1% are beginning smokers, and 93% claim to be lifetime abstainers (data not shown). The numbers indicating current smoking are too small to be reliable for reporting purposes.

For individuals who are 15-19, the effect of friends' smoking on their own smoking is especially strong. For these youth, 461,000 are estimated to have five or

more close friends who smoke. Of these, 55% are estimated to be current smokers, 7% beginning smokers, and 30% lifetime abstainers. Again at the other end of the spectrum, 549,000 youth aged 15-19 indicate that they have no close friends who smoke. For these youth, 2% are estimated to be currently smoking, 2% are beginning smokers, and 82% are lifetime abstainers. There does not appear to be any major difference between males and females in this association.

Father's Smoking and Opinions of Youth Smoking

About one third (34%) of individuals aged 10-19 report that their father currently smokes (Table 5-A). More importantly, there is an association between the smoking habits of the father and the smoking habits of the adolescent. For example, 47% of the current daily smokers report that their father smokes currently compared to 30% of lifetime abstainers. There is no apparent difference between males and females in the relationship between the current smoking habits of the father and the smoking habits of the youth. Similarly, this association remains basically the same with age.

Youth also indicate whether or not their father had *ever* smoked (data not shown). For youth aged 10-19 in the YSS, 50% indicate that their father had smoked at some time. Again, an association between lifetime smoking habits of the father and the smoking habits of the child is noted. For example, 63% of all current smokers reported that their father had smoked at one time, a percentage consistent across current daily, current non-daily, and beginning smokers. However, for the lifetime abstainers, only 46% indicated that their father had ever smoked. The association between lifetime smoking habits of the father and the smoking status of the youth is similar for males and females and across all age groups.

Large proportions of fathers reportedly do not know that their children smoke (30%); for younger and beginning smokers, the percentages are twice as high (Table 5-2). When fathers are aware, they are much more likely to disapprove than approve, according to these youth. Only 3% of current smokers aged 10-19 indicated that their father approved of their smoking. Even fewer beginning smokers (data suppressed) indicated their father's approval. Again, there is little difference between males' and females' reports of their father's opinion of their smoking.

Table 5-A
Father Smokes Currently, by Type of Smoker, Sex, and Age, Canada, 1994

		Smoking Among Youth Whose Father Smokes Currently (%)				
	All Youth	All Current	Current Daily	Current Non-daily	Beginning	Lifetime Abstainer
Total, 10-19	**34**	**44**	**47**	**38**	**39**	**30**
10-14	34	48	51	46	43	31
15-19	33	43	47	31	35	28
Males, 10-19	**33**	**43**	**47**	**34**	**38**	**29**
10-14	33	43	45	41	39	31
15-19	32	43	48	29	37	27
Females, 10-19	**35**	**45**	**47**	**42**	**40**	**31**
10-14	35	52	57	50	45	32
15-19	34	43	46	34	34	30

As might be expected, there are differences by age group (Table 5-2). Over half (57%) of all smokers aged 10-14 indicated their father did not know about their smoking, compared with 18% among youth aged 15-19. Beginning smokers are more likely to report fathers not being aware of their smoking. While three quarters of beginning smokers aged 10-14 say their father doesn't know, this figure drops to less than half among 15- to 19-year-old youth. Reports of father's disapproval of youth smoking appear to rise among older smokers in each of the categories of smoking, perhaps influenced by the different levels of awareness.

By the time youth reach age 18-19 (data not shown), only 10% of the current smokers indicate that their father does not know about their smoking, and for the current daily smokers this rate is only 5%. However, the percentage indicating that their father approves remains very low (7%), and the percentage indicating that their father does not care has not changed much either (24%). Fully 52% of all current smokers indicate that their father does not like their smoking. Again, these rates are consistent for both males and females.

Table 5-B
Mother Smokes Currently, by Type of Smoker, Sex, and Age, Canada, 1994

	Smoking Among Youth Whose Mother Smokes Currently (%)					
	All Youth	All Current	Current Daily	Current Non-daily	Beginning	Lifetime Abstainer
Total, 10-19	**28**	**43**	**45**	**39**	**33**	**23**
10-14	29	49	53	46	35	25
15-19	27	41	44	33	30	21
Males, 10-19	**27**	**39**	**43**	**33**	**31**	**23**
10-14	28	44	48	42	37	24
15-19	27	38	42	27	23	22
Females, 10-19	**29**	**47**	**48**	**45**	**35**	**23**
10-14	30	53	59	50	34	26
15-19	28	45	46	41	35	19

Mother's Smoking and Opinions of Youth Smoking

Youth whose mother currently smokes are more likely to smoke (Table 5-B). Overall, 28% indicate that their mother smokes now. However, for all current smokers, 43% indicate that their mother currently smokes, while the rate for lifetime abstainers is 23%.

These patterns are similar to those reported above for fathers. However, the association between the smoking habits of the mother and the smoking habits of the youth appears to vary by sex. For males, 39% of all current smokers indicate that their mother smokes currently. For females, this rises to 47% of all current smokers, suggesting a stronger association of mother's smoking with current youth smoking. The male-female difference in the percentage reporting mothers who currently smoke decreases to 4 percentage points among beginning smokers and to 0 percentage points for male and female lifetime abstainers.

Table 5-B also reveals age group differences in the percentage of mothers who smoke for current youth smokers. Males and females aged 10-14 who currently smoke are, respectively, 6 and 8 percentage points more likely to report having a mother who currently smokes than those aged 15-19. Even larger differentials by age are reported by current non-daily smokers (15 percentage points for males; 9 percentage points for females). This age difference pattern persists for male beginning smokers, with a 14 percentage point higher rate reported by the younger group, but not for female beginning smokers. Thus, there is an association between the smoking habits of the mother and those of the youth. The association is stronger for females than for males and for those aged 10-14 than for those aged 15-19. For the current non-daily smokers, the difference between sexes is even more pronounced.

When asked whether or not their mother *ever* smoked, 36% indicated that she had smoked at some time (data not shown). Again, there is an association between the lifetime smoking habits of the mother and the smoking habits of the youth, particularly for females. For example, for all current smokers, the percentages indicating that their mother has smoked at one time are 49% for males and 55% for females.

Table 5-3 reports data on the mother's awareness and approval of youth smoking, which are largely consistent with data on the father's perceptions (Table 5-2). More than half of all beginning smokers' mothers do not know their child smokes, a figure that rises to 70% among beginning smokers aged 10-14. In fact, large proportions of mothers of all types of smokers aged 10-14 are reportedly unaware of their child's smoking.

While differences in mother's approval/disapproval between males and females are minor, Table 5-3 reports differences by age group. Reports of mother's disapproval of youth smoking appear to rise among older smokers (age 15-19) in each of the types of smoker, doubling or tripling in the case of current non-daily and beginning smokers, respectively. This may be related to the higher rates of unawareness of child's smoking for ages 10-14 and for beginning and non-daily smokers.

Combined Influence of Smoking of Both Parents

The combined effect of both parents' smoking was examined by considering both parents who smoke, one parent who smokes and neither parent who smokes (Table 5-4). For youth aged 10-19, 16% report that both parents smoke, 18% and 12% report that only one parent smokes (father and mother, respectively), and 54% report that neither parent smokes. Current smokers are twice as likely as lifetime abstainers to report that both parents smoke. The proportions are reversed for these two groups with respect to neither parent smoking.

Females appear slightly more likely than males to smoke when both parents smoke. The difference is most noticeable for 10- to 14-year-olds, where 36% of female current smokers compared to 27% of male current smokers report that both parents smoke. For 15- to 19-year-olds, the corresponding figures differ by only 4 percentage points, although the difference is consistent across sex and age groupings for beginning smokers too.

Table 5-C presents these data in a different manner to highlight a potential association between sex of the youth and sex of the smoking parent. For males, the difference in rates of current smoking between those whose father smokes and those whose mother smokes is only 2 percentage points. For females, the corresponding difference is 13 percentage points.

An association between the smoking status of both parents and the number of cigarettes smoked per day is also evident (data not shown). For those smokers who report smoking five or fewer cigarettes per day, 19% indicate that both parents smoke. For those who smoke more than five cigarettes a day, approximately 30% report that both of their parents smoke. Thus, not only is there an association between whether or not the child is smoking and the smoking status of the parents, we also see an association between the amount smoked and the smoking status of parents.

Youth who smoked were asked whether or not they ever smoked at home, to provide another indication of whether or not their smoking habit is acceptable (or known, at least) to parents or the degree to which these youth are willing to take risks to smoke. However, youth were not asked whether parents were present at the time. Half of all smokers said they had smoked at home (Table 5-D). While the percentage among youth aged 15-19 appears higher for all smokers, this is a result of a lower proportion of beginning smokers at this age (see Table 3-1). Only one in five beginning smokers in either age group indicated that they had ever smoked at home. However, considering that beginning smokers are defined to be those who have smoked fewer than 100 cigarettes in their lifetime, this proportion is a significant indication that even at this early stage of smoking initiation, smoking is taking place among adolescents in their own home. Consistent across ages 10-19, two thirds of all current smokers responded that they had smoked at home.

Table 5-C
Smoking Habits of Parents, by Sex and Type of Smoker, Current Smokers Aged 15-19, Canada, 1994

	Prevalence of smoking (%)			
	Both Parents Smoke	Father Smokes	Mother Smokes	Neither Parent Smokes
Males, 15-19	36	27	29	17
Females, 15-19	41	22	35	17

Table 5-D
Ever Smoked at Home, by Sex, Age, and Type of Smoker, Canada, 1994

	Ever Smoked at Home (%)				
	All Smokers	All Current	Current Daily	Current Non-daily	Beginning
Total, 10-19	**51**	**65**	**72**	**53**	**20**
10-14	43	67	79	60	21
15-19	55	65	71	47	19
Males, 10-19	**50**	**63**	**72**	**47**	**16**
10-14	41	63	81	52	17
15-19	54	64	71	44	14
Females, 10-19	**53**	**67**	**71**	**59**	**24**
10-14	46	71	77	68	24
15-19	56	66	70	52	23

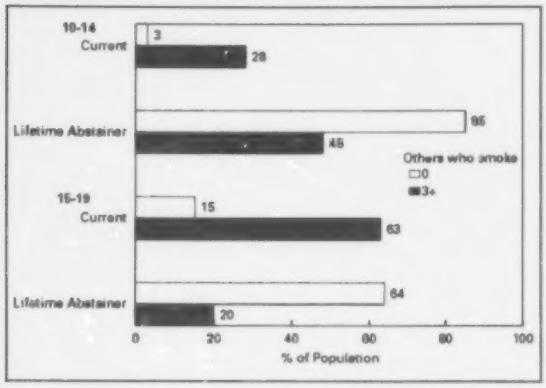
There is a small overall greater tendency for females to have ever smoked at home. Compared to males, the difference is 4 percentage points higher for current smokers and 8 percentage points higher for beginning smokers. However, the trend is reversed for female and male current daily smokers in both 10-14 and 15-19 age groups.

By the time youth have reached the age of 18-19, it might be expected that their smoking habits would be generally acceptable to or at least tolerated by their parents and that they would report high rates of having ever smoked at home. However, this is not generally the case. In fact, only 73% of the current daily smokers aged 18-19 report ever having smoked in their homes (data not shown).

Others Inside the Home

Youth were asked to indicate the number of other people who smoke regularly in their homes. There is a strong association between the number of people smoking regularly at home and the smoking status of the youth (Table 5-5). For example, 52% of all youth

Figure 5-B
Type of Smoker, by Age and Number of Other Household Members Who Smoke, Canada, 1994



aged 10-19 indicated that there were no people smoking regularly at their home. For all current smokers, only 31% indicated no one smoking regularly at their home, while for lifetime abstainers, 59% indicated no one smoking regularly at their home. Of the current smokers, 19% indicated that three or more people smoke regularly in their home; for the lifetime abstainers, only 3% indicated that three or more people smoke regularly in their home.

Viewed another way, for youth aged 10-14, almost none of those coming from homes in which nobody else regularly smokes claim to be current smokers, while the vast majority (85%) claim to be lifetime abstainers (Fig. 5-B). One quarter of youth coming from a home in which three or more people smoke regularly claim to be current smokers, and only half claim to be lifetime abstainers. The rates for 15- to 19-year-olds in both of these types of homes are higher because of the overall higher smoking rates within those groups; however, the associations remain clear. For example, in homes in which no one smokes regularly, only 15% were current smokers, 5% were beginning smokers, and 64% were lifetime abstainers. In homes where three or more people smoke regularly, 63% of youth were current smokers, 6% were beginning smokers, and 20% were lifetime abstainers. There is no apparent difference at any age group between males and females in the association between the number of people smoking regularly in the home and the smoking status of the youth (data not shown). Again, this is evidence of a strong association between the smoking status of others in the adolescent's home environment and the smoking habits of the adolescent.

Teachers' Smoking Behaviour

When youth aged 10-14 were asked about the number of teachers who smoke, about half (41%) reported that they do not know, while about a third thought that "a few smoke." Few students perceived that most or even many of their teachers smoke (Table 5-6). As youth become more involved with tobacco, they are less likely to report that they don't know if their teachers smoke. Differences can also be seen by smoking status in the percentage of students reporting that half or most of their teachers smoke. Twenty-eight percent of current smokers, 18% of beginning smokers, and only 7% of lifetime abstainers report that half or most of their teachers smoke.

For youth aged 15-19 who were attending school, the majority of students replied that a few teachers smoked, about half smoked, or they did not know how many teachers smoked. For the 15- to 19-year-olds, there is a similar association between one's own smoking and perceptions of whether teachers smoke: 17% of current smokers, 24% of beginning smokers, and 28% of lifetime abstainers reported not knowing how many teachers smoked. Differences between those reporting that half or most of their teachers smoke are less striking in this age group. For these youth, 38% of current smokers, 37% of beginning smokers, and 29% of lifetime abstainers report that half or most of their teachers smoke.

Therefore, it appears that when students believe that more than half of their teachers smoke, particularly for the 10-to 14-year-olds, they are more likely to smoke themselves. Further, it is the lifetime abstainers at all ages who are most likely not to have an opinion on whether their teachers smoke.

The YSS also asked about compliance with school rules on smoking. Because regulations may be different for elementary schools and secondary schools, the data were examined separately for those aged 10-14 and those aged 15-19. As Table 5-7 indicates, 57% of students aged 10-14 indicated that most students obey school rules on smoking. Current smokers are more likely to report that most students do not obey school rules, while abstainers are more likely not to know. It is interesting to note that for students who do not know and perhaps have not stopped to think about school smoking rules, relatively few are currently smoking.

For students aged 15-19, 78% report that most students obey school rules on smoking, 21% report that most students do not obey school rules, and only 1% report that they do not know (Table 5-7). However, there is little association between smoking status of youth and perceptions of compliance with school smoking rules. Similar patterns hold for beginning smokers and lifetime abstainers. There is no apparent difference at either age between males and females in terms of whether or not they believe that most students obey school smoking rules.

Discussion

The data in this chapter confirm the often observed associations between smoking status of adolescents and smoking status of important social models in their environment.[2,3] The data from the YSS confirm what has been found in numerous cross-sectional and longitudinal studies of smoking onset. Specifically, the association between smoking habits of youth and the smoking habits of their friends is very strong. [2,3] While cross-sectional data are not able to distinguish whether or not the smoking habits of friends influence the adolescent to begin to smoke or whether adolescents who smoke seek out other adolescents who smoke for friendships, data from longitudinal investigations do indicate that, in fact, non-smokers who have smoking friends are more likely to become smokers. [3] The same caveat concerning analysis of cross-sectional data pertains to the relationship between youth smoking and smoking by other social models (e.g., parents, teachers).

Care must be taken not to overinterpret the associations described above. For example, Chapter 6 suggests that youth do not equate having friends who smoke with peer pressure to smoke. Chapter 6 also contains a discussion of the role of internal and external influences to smoke. While the YSS contains no data to shed light on the question, presumably social influences operate through building perceptions that smoking is normal and desirable. Each of the social models in a youth's life then becomes a potentially important influence.

Reported prevalence of parents' smoking (father: 34%; mother: 28%) by youth is close to actual prevalence as measured by the National Population Health Survey. [8] This suggests accurate perceptions by youth on this item, at least, and should increase confidence in the overall set of variables considered in this chapter. However, the reader must be mindful that the chapter relies on self-reports of parental, peer, and teacher smoking, which may be inaccurate. On the other hand, influences of these sorts need only to be perceived to be effective.

The data indicate that the association of parental smoking status with youth smoking is stronger for females, particularly with respect to the smoking status of the mother. The literature is unclear on this: some studies indicate that the sex of the smoking model is related to the sex of the smoking adolescent, while other studies do not indicate such an association. [3] An association between the number of smokers in the youth's home and the smoking habits of the youth was also noted.

Positive associations between the smoking habits of youth and the smoking habits of teachers and reported violations of school smoking rules at younger ages could be suggestive of the influence of others and the impact of an environment supportive of non-smoking. However, as mentioned in the Methods section, differential perception of smoking for smokers and non-smokers could also be an explanation for the findings concerning teachers and schools. That is, issues of validity of the responses must be considered. For example, smokers may be aware that there are other smokers who break school rules by smoking on school property or having cigarettes in areas where they are not allowed. Non-smokers who have not frequented locations on school property where smokers violate rules or do not know smokers who break the school rules may well not be aware of such violations. In addition, it is not possible at this level of analysis to determine whether the smoking habits of teachers are related to the smoking habits of youth because the youth model the teachers' behaviour, whether smoking youth are more perceptive about smoking in their environment and give more accurate reports, or whether smokers overestimate the number of others who smoke. Thus, in interpreting these data, the potential biases in the reporting of the students must be considered.

Implications for Regulation and Legislation

There are only limited data in this chapter relevant to regulation and legislation. The association between youth smoking and smoking of close friends suggests that regulations restricting smoking in areas where youth congregate (e.g., malls, video arcades, and other public places) could be effective in reducing both the perception that smoking prevalence is high and smoking opportunities with friends.

The association between smoking in youth and perceived violations of smoking rules at school for 10- to 14-year-olds suggests that campaigns to vigorously enforce smoking rules could be effective in reducing smoking. However, as mentioned above, there are alternative explanations for the observed association, and confirmatory data from more controlled studies are probably required here.

Implications for Education and Message Promotion

The most effective school-based smoking prevention programs have been developed around the idea that social influences are important in the onset and maintenance of cigarette smoking in adolescents. [1] Social influences curricula taught in elementary schools, in which youth are alerted to the important social influences in their environment and then learn skills to resist these influences, have been evaluated in a number of efficacy and effectiveness trials (see Bruvold[1] for a meta-analysis of 94 smoking prevention trials). Generally, such social influences programs have been shown to reduce smoking in the short term, [1] but these effects tend not to last, particularly when the individual leaves elementary school and moves into secondary school.[4,6] While there have been numerous trials of different smoking interventions at the elementary level, there have been very few programs developed for secondary school students. The strong association between smoking habits of youth and those of their friends at ages 15-19 suggests that components of these programs will need to continue to deal with social influences and need to be continued through high school.

The overall effect of elementary school programs to prevent smoking is relatively small, [7] as many students continue to smoke. School-based programs are necessary but not sufficient to eliminate the onset of smoking. It is clear that there are many factors that might cause youth to smoke. In developing effective school programs, effective advertising, and effective regulations, knowledge of a wide range of potential factors influencing smoking onset is required. Many other variables have been identified that are predictive of smoking in adolescents, including psychosocial and environmental variables,[3] and effective smoking prevention programming requires an incorporation of a variety of program elements and strategies. One element might include collecting school-specific data that identify the percentages of students and teachers who smoke. To the extent that students tend to overestimate the proportion of people who smoke, accurate knowledge may reduce the perceived pressure to smoke.

The relationship between the smoking habits of parents and the smoking habits of their children could be used to promote smoking cessation in adults and smoking prevention in children. Most smokers would like to quit (see Chapter 4), and most smokers are supportive of measures to prevent youth from smoking. [5] Taken together, this suggests the potential effectiveness of campaigns that target adults with the message that their quitting could be important in preventing their child's smoking.

Implications for Future Monitoring and Further Research

Future monitoring studies might profitably link actual and perceived data on smoking among intact friendship groups (and/or family groups) to better understand the association of youth smoking with the smoking of people in their environment. Such a linkage would enable analysts to determine the accuracy of reports of smoking and whether actual or perceived smoking has the stronger association with youth smoking.

It is clear that there are associations between the smoking habits of important social influences in the youth's environment and the smoking status of the youth. However, interesting questions remain. For example, there are large numbers of youth who live in homes where there are numerous cigarette smokers and yet have not become smokers. It is not clear what strategies these youth use to avoid or to resist the influences of important social models in their environment. Further, some youth from homes in which there is relatively little smoking go on to become smokers. Determining the strategies that youth can use to resist social influences and determining the influences that might have an impact on youth who come from environments in which there are relatively few smoking models represent important areas for further research.

As mentioned, cross-sectional data cannot determine whether youth become smokers because of the social influence of the smoking habits of close friends or whether smokers (and non-smokers) seek out others like themselves for close friends. [9] An interesting research question is whether friendship patterns change with the acquisition of smoking or whether youth take up smoking as their close friends take up

the habit. If the latter is the case, it would be important to determine factors that might cause intact social groups to take up smoking. For example, does this require leadership from a dynamic member of the group or is it a group decision? Elucidating these mechanisms is a first step in developing effective interventions.

Finally, the nature of the social influence may well change with age. Close friends may exert different types of influences at different ages, and smoking may take on different roles in establishing and maintaining friendships at different ages or for different youth. For example, at one age smoking may be viewed as a statement of rebellion and as a "mark of courage" to attain social acceptance, while at another age it may be merely associated with an activity such as drinking. Understanding the role that smoking plays in the interactions of youth and how this role might vary or change with age is an area that is ripe for research.

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Table 5-1
Number of Good Friends Who Smoke, by Age, Sex, and Type of Smoker, Canada, 1994

	Pop. Est. ('000)	Number of Good Friends Who Smoke (%)				
		0	1	2	3-4	≥5
Total, 10-19	**3,569**	**42**	**13**	**12**	**13**	**19**
All current	567	2	7	11	28	51
Current daily	381	2	6	11	29	51
Current non-daily	186	3	9	12	26	49
Beginning	249	10	17	19	27	27
Lifetime abstainer	2,270	59	14	10	8	10
10-14	1,701	56	13	9	9	12
All current	122	#	10	11	23	54
Current daily	43	#	#	#	23	60
Current non-daily	79	#	11	12	23	52
Beginning	132	9	19	17	28	27
Lifetime abstainer	1,275	69	12	7	6	6
15-19	1,868	29	13	15	17	25
All current	445	3	6	12	30	49
Current daily	338	2	6	11	30	50
Current non-daily	107	#	8	13	29	47
Beginning	118	11	15	20	26	28
Lifetime abstainer	995	45	16	15	11	13
Males, 10-19	**1,788**	**42**	**13**	**11**	**13**	**20**
All current	281	#	7	8	29	54
Current daily	185	#	6	7	31	53
Current non-daily	97	3	9	8	26	54
Beginning	108	13	17	18	22	28
Lifetime abstainer	1,149	58	14	10	7	10
Females, 10-19	**1,781**	**42**	**14**	**13**	**15**	**17**
All current	286	3	7	15	26	48
Current daily	196	#	6	15	27	49
Current non-daily	90	#	9	17	27	45
Beginning	141	7	16	19	31	26
Lifetime abstainer	1,121	59	14	10	8	7

Data suppressed due to high sampling variability

Table 5-2
Father's Opinion of His Child's Smoking, by Sex, Age, and Type of Smoker, Canada, 1994

		Father's Opinion (%)				
	Pop. Est. ('000)	Approves	Does Not Care	Does Not Approve	Does Not Know	No Father
All Smokers, 10-19	**836**	**3**	**18**	**38**	**30**	**7**
Current daily	387	6	26	50	9	8
Current non-daily	193	#	14	39	36	7
Beginning	256	#	9	20	59	4
10-14	266	2	9	20	57	4
Current daily	46	#	24	34	25	#
Current non-daily	82	#	12	31	45	#
Beginning	138	#	#	9	74	3
15-19	570	4	22	47	18	8
Current daily	341	6	27	52	6	8
Current non-daily	111	#	16	46	28	9
Beginning	118	#	17	33	43	5
All Male Smokers, 10-19	**403**	**3**	**21**	**38**	**29**	**7**
Current daily	188	4	29	47	9	10
Current non-daily	102	#	17	40	35	#
Beginning	113	#	10	22	56	#
10-14	123	#	10	20	57	4
Current daily	24	#	24	32	30	#
Current non-daily	39	#	11	29	50	#
Beginning	61	#	3	10	72	#
15-19	279	3	26	46	17	8
Current daily	164	4	30	49	6	11
Current non-daily	63	#	21	47	25	#
Beginning	52	#	19	36	38	#
All Female Smokers, 10-19	**433**	**4**	**16**	**39**	**32**	**6**
Current daily	199	8	24	53	8	6
Current non-daily	91	#	11	38	37	11
Beginning	143	#	8	19	62	4
10-14	142	#	9	20	57	4
Current daily	22	#	23	37	20	#
Current non-daily	43	#	13	32	43	#
Beginning	77	#	#	8	75	#
15-19	291	5	19	48	20	8
Current daily	177	7	24	55	7	6
Current non-daily	48	#	9	43	31	#
Beginning	66	#	15	32	46	#

Data suppressed due to high sampling variability

Table 5-3
Mother's Opinion of Her Child's Smoking, by Sex, Age, and Type of Smoker, Canada, 1994

	Pop. Est. ('000)	Mother's Opinion (%)				
		Approves	Does Not Care	Does Not Approve	Does Not Know	No Mother
All Smokers, 10-19	**836**	**4**	**18**	**48**	**27**	**1**
Current daily	387	6	27	58	6	2
Current non-daily	193	#	14	53	29	#
Beginning	256	#	7	28	57	#
10-14	266	3	11	26	52	#
Current daily	46	#	25	46	16	#
Current non-daily	82	#	16	34	44	#
Beginning	138	#	3	15	70	#
15-19	570	4	21	58	15	2
Current daily	341	6	27	60	5	2
Current non-daily	111	#	13	67	18	#
Beginning	118	#	10	44	43	#
All Male Smokers, 10-19	**403**	**3**	**18**	**51**	**25**	**1**
Current daily	188	4	27	60	5	#
Current non-daily	102	#	13	55	27	#
Beginning	113	#	6	31	55	#
10-14	123	#	10	27	52	#
Current daily	24	#	25	45	21	#
Current non-daily	39	#	12	34	46	#
Beginning	61	#	3	16	68	#
15-19	279	3	21	61	13	#
Current daily	164	4	28	62	3	#
Current non-daily	63	#	14	69	15	#
Beginning	52	#	10	47	40	#
All Female Smokers, 10-19	**433**	**4**	**18**	**45**	**29**	**#**
Current daily	199	8	26	56	7	#
Current non-daily	91	#	15	50	31	#
Beginning	143	#	7	26	59	#
10-14	142	3	12	25	53	#
Current daily	22	#	25	47	#	#
Current non-daily	43	#	20	33	42	#
Beginning	77	#	3	13	70	#
15-19	291	5	20	55	18	#
Current daily	177	7	27	57	6	#
Current non-daily	48	#	11	65	21	#
Beginning	66	#	10	41	45	#

Data suppressed due to high sampling variability

Table 5-4
Smoking Behaviour of Parents, by Age, Sex, and Type of Smoker, Canada, 1994

	Pop. Est. ('000)	Smoking Status of Parents (%)			
		Both Smoke	Father Only	Mother Only	Neither
Total, 10-19	**3,810**	**16**	**18**	**12**	**54**
All current	580	26	18	17	38
Current daily	387	28	19	17	34
Current non-daily	193	22	15	16	46
Beginning	256	18	22	15	45
Lifetime abstainer	2,472	13	17	10	59
10-14	1,888	17	18	12	53
All current	128	32	16	17	34
Current daily	46	35	16	18	28
Current non-daily	82	30	16	16	37
Beginning	138	21	21	14	43
Lifetime abstainer	1,433	14	17	11	57
15-19	1,922	15	18	13	54
All current	452	24	19	17	39
Current daily	341	27	20	17	35
Current non-daily	111	17	15	16	52
Beginning	118	13	22	17	47
Lifetime abstainer	1,038	11	17	10	62
Males, 10-19	**1,947**	**15**	**18**	**12**	**55**
All current	290	23	19	16	41
Current daily	188	25	22	18	34
Current non-daily	102	20	14	12	53
Beginning	113	15	23	15	46
Lifetime abstainer	1,281	13	16	10	60
10-14	965	16	18	12	54
All current	63	27	16	17	39
Current daily	24	28	18	20	32
Current non-daily	39	27	14	15	43
Beginning	61	20	19	17	43
Lifetime abstainer	76	14	17	10	58
15-19	982	14	18	13	55
All current	227	22	20	16	41
Current daily	164	24	23	18	34
Current non-daily	63	16	13	11	60
Beginning	52	10	26	13	49
Lifetime abstainer	544	11	16	10	62

Table 5-4 (Cont'd)
Smoking Behaviour of Parents, by Age, Sex, and Type of Smoker, Canada, 1994

	Pop. Est. ('000)	Smoking Status of Parents (%)			
		Both Smoke	Father Only	Mother Only	Neither
Females, 10-19	**1,863**	**17**	**18**	**12**	**52**
All current	290	29	17	18	36
Current daily	199	30	17	17	35
Current non-daily	91	25	17	20	37
Beginning	143	19	21	15	44
Lifetime abstainer	1,191	13	18	10	58
10-14	923	18	18	12	52
All current	65	36	16	17	29
Current daily	22	43	14	16	23
Current non-daily	43	33	17	17	33
Beginning	77	22	23	12	43
Lifetime abstainer	696	15	17	11	56
15-19	940	15	18	13	53
All current	225	27	17	18	38
Current daily	177	29	17	17	37
Current non-daily	48	17	17	24	41
Beginning	66	16	18	20	46
Lifetime abstainer	495	10	19	9	61

Table 5-5
Students' Perception of the Number of People Smoking Regularly at Home, by Age, Sex, and Type of Smoker, Canada, 1994

	Pop. Est. ('000)	Number of People Smoking Regularly at Home (%)			
		0	1	2	≥3
Total, 10-19	**3,810**	**52**	**26**	**15**	**5**
All current	580	31	25	24	19
Current daily	387	28	25	25	21
Current non-daily	193	38	24	21	18
Beginning	256	42	29	18	9
Lifetime abstainer	2,472	59	25	12	3
10-14	1,888	51	26	15	7
All current	128	23	21	25	28
Current daily	46	19	18	26	34
Current non-daily	82	26	22	24	27
Beginning	138	40	27	20	12
Lifetime abstainer	1,433	57	25	13	3
15-19	1,922	53	26	14	5
All current	452	33	26	24	16
Current daily	341	29	26	25	20
Current non-daily	111	46	24	19	9
Beginning	118	45	31	17	5
Lifetime abstainer	1,038	63	25	10	2
Males, 10-19	**1,947**	**53**	**26**	**14**	**5**
All current	290	35	23	22	20
Current daily	188	30	22	26	20
Current non-daily	102	44	23	15	16
Beginning	113	44	30	14	11
Lifetime abstainer	1,281	59	25	11	3
Females, 10-19	**1,863**	**51**	**26**	**15**	**6**
All current	290	27	27	25	21
Current daily	199	25	28	24	21
Current non-daily	91	30	24	28	18
Beginning	143	41	28	22	9
Lifetime abstainer	1,191	60	25	12	2

Table 5-6
Number of Teachers Who Smoke, by Age, Sex, and Type of Smoker, Students in School, Canada, 1994

		Number of Teachers Who Smoke (%)				
	Pop. Est. ('000)	None	A Few	About Half	Most	Don't Know
Total, 10-19	**3,606**	**5**	**34**	**15**	**5**	**41**
All current	457	#	41	26	8	24
Current daily	281	#	41	27	9*	20
Current non-daily	176	#	41	23	7*	29
Beginning	246	#	36	20	7*	36
Lifetime abstainer	2,377	6	33	11	4	45
10-14	1,949	5	31	7	4	53
All current	128	#	30	18*	10*	41
Current daily	46	#	29*	19*	#	36*
Current non-daily	82	#	31*	18*	#	43
Beginning	138	#	34	13*	#	46
Lifetime abstainer	1,433	6	30	5	2*	56
15-19	1,657	4	33	24	7	26
All current	329	#	44	29	9*	17
Current daily	236	#	44	29	9*	17
Current non-daily	94	#	50	27*	#	17*
Beginning	108	#	38	28	9*	24*
Lifetime abstainer	944	6	38	22	7	28
Males, 10-19	**1,837**	**6**	**37**	**14**	**5**	**39**
All current	228	#	44	25	8*	22
Current daily	134	#	44	25	9*	20*
Current non-daily	94	#	43	24*	#	25*
Beginning	106	#	42	15*	#	35
Lifetime abstainer	1,227	7	36	10	4	43
Females, 10-19	**1,769**	**4**	**32**	**16**	**5**	**43**
All current	229	#	39	26	9*	25
Current daily	147	#	39	29	10*	21*
Current non-daily	82	#	38	21*	#	34*
Beginning	140	#	31	23*	7*	36
Lifetime abstainer	1,150	5	31	13	4	47

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 5-7
Perceived Compliance with School Smoking Restrictions, by Age, Sex, and Type of Smoker, Students in School, Canada, 1994

		Number of Students Who Obey School Rules (%)		
	Pop. Est. ('000)	Most Do Most Obey School Rules	Not Obey School Rules	Don't Know
Total, 10-19	**2,666**	**69**	**23**	**8**
All current	429	72	26	2
Current daily	269	75	23	2
Current non-daily	160	66	32	#
Beginning	211	67	26	7
Lifetime abstainer	1,637	69	21	11
10-14	1,097	57	25	18
All current	108	58	35	7
Current daily	39	52	36	#
Current non-daily	69	61	35	#
Beginning	106	54	32	13
Lifetime abstainer	748	57	21	22
15-19	1,569	78	21	1
All current	321	76	23	#
Current daily	230	79	21	#
Current non-daily	91	71	29	#
Beginning	104	80	18	#
Lifetime abstainer	889	78	20	2
Males, 10-19	**1,350**	**71**	**21**	**8**
All current	210	73	25	2
Current daily	127	75	22	#
Current non-daily	84	70	29	#
Beginning	89	69	24	7
Lifetime abstainer	850	72	18	10
Females, 10-19	**1,316**	**67**	**24**	**9**
All current	219	70	28	2
Current daily	142	75	24	#
Current non-daily	77	62	35	#
Beginning	122	65	27	8
Lifetime abstainer	787	65	23	12

Data suppressed due to high sampling variability

Chapter 6

Beliefs and Attitudes

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Highlights

Methods

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- Type of Smoker
- Planning to Smoke
- Province and School Performance

Attitudes Toward Smoking
- Age, Sex, and Type of Smoker
- Planning to Smoke
- Proportion of Others Who Smoke

Reasons Youth Start Smoking: 10- to 14-year-olds
- Age
- Type of Smoker and Sex
- Other Classification Variables

Reasons Youth Start Smoking: 15- to 19-year-olds
- Age and Sex
- Type of Smoker
- Other Classification Variables

Reasons Youth Start Smoking: Comparing 10- to 14- and 15- to 19-year-olds
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Beliefs About Tobacco Corporation Sponsorship
Implications for Regulation and Legislation
Implications for Education and Message Promotion
Implications for Future Monitoring and Further Research

References

Highlights

- Just about all youth, regardless of whether or not they smoke, believe that tobacco is addictive (91%) and that environmental tobacco smoke harms the health of non-smokers (90%). Little variation by age is noted. Relative to the national average, youth aged 10-14 in Quebec are less likely to believe that tobacco is addictive (74%) and that environmental tobacco smoke can harm non-smokers (50%).

- Youth who smoke are just as likely as those who do not smoke to hold beliefs about the various negative health effects of smoking, with the exception that smokers are less likely to believe that occasional smoking can harm health. However, current smokers are most likely to believe there are benefits to smoking, such as providing relaxation, weight control, and alleviating boredom.

- There are very few sex differences regarding the negative health beliefs and perceived benefits of smoking, including the belief that smoking helps control weight.

- Overall, the most common reason given as to why youth start to smoke is the influence of friends, followed by curiosity and "it's cool." Curiosity as a reason youth start to smoke is seen as particularly important among current and former smokers, while those who have never smoked are more likely to stress image-enhancing reasons, such as "it's cool."

- Of those youth who have seen cigarette pack warnings, most agree (85%) that cigarette packs should have health warning labels, with current smokers least likely to support this notion. Almost all youth (97%) believe the warnings they have seen on cigarette packages.

- A strong majority of youth (83%) who have seen tobacco corporation sponsorship advertisements (50% of the total sample) feel that these ads are a way for the tobacco industry to advertise particular cigarette brands. Just over half (55%) of these youth also believe that sponsorship ads encourage smoking behaviour.

- These results suggest that because tobacco corporation sponsorship is seen by many youth as a guise for cigarette advertising and as a means to encourage smoking, controls on sponsorship are likely to contribute to tobacco control among youth.

Methods

Given the important and complex association between beliefs, attitudes, and behaviour, the Youth Smoking Survey (YSS) included numerous items that solicited opinions from youth on various smoking-related issues. This chapter presents beliefs about the health effects of smoking (SS44a-h, j, HH49a-h, j, that is, School Survey Questions 44a-h, j and Household Survey Questions 49a-h, j; see Appendix A), attitudes toward smoking (SS44i, k, HH49i, k), perceptions regarding why youth start smoking (SS45, HH50), as well as beliefs about pack warning labels (SS50, SS51, HH56, HH57) and tobacco company sponsorship (SS54a-d, HH62a-e).

The majority of the items presented in the chapter were closed-ended questions and statements to which youth in both survey components indicated whether or not they agreed or whether or not they believed the statement to be true. However, the methods used to explore the possible reasons youth start to smoke (SS45, HH50) differed between the school component (ages 10-14) and the household component (ages 15-19). For youth aged 10-14, a list of possible reasons as to why youth their age start to smoke was provided in the questionnaire, and respondents were asked to check all those reasons with which they agreed. Youth in the household component of the survey (age 15-19) were interviewed by telephone and were asked to state all possible reasons, ***unaided and unprompted*** (although they were given the opportunity to provide more than one reason, and, to facilitate coding, interviewers had the list of categories used in the school component). It is likely that this difference in question format influenced the responses of these two age groups, thus precluding the calculation of total estimates (i.e., ages 10-19) and rendering comparisons across survey components problematic. Consequently, this variable has been analyzed separately for the 10-14 and 15-19 age groups (see Table 6-7), although a tentative comparison is provided. Further consideration of the influence of this method effect can be found in the Discussion.

The majority of items in this chapter were administered to the entire YSS sample, with a few exceptions. The section concerning beliefs about cigarette pack warning labels was restricted to youth who reported having ever seen pack warning labels (84% of total sample). They were asked whether or not they believed the warning labels (SS50, HH56) and how much they agreed with packages having warning messages (agree a lot, agree a little, neither, disagree a

little, or disagree a lot; SS51, HH57). For the purpose of analysis, responses to the latter question were collapsed into agree, disagree, or neither. Similarly, the questions that examined beliefs about sponsorship pertained to only those who reported having ever seen a tobacco company sponsorship advertisement (50% of total sample). Finally, due to its complexity, one item in the household component that probed beliefs about the promotion of goodwill by the tobacco corporations (HH62e) was not asked of youths in the school component.

Differences in beliefs and attitudes were examined according to age, sex, province, and type of smoker. Note that the beginning smokers were removed from the "Have not smoked 100 cigarettes" category and examined as a distinct subgroup to elicit further detail, thereby limiting the latter classification to past experimenters and lifetime abstainers (hereafter referred to as "never smokers" in the text).

In addition to the standard variables used throughout this report (see Chapter 2), this chapter includes other correlates, such as the proportion of friends who smoke (restricted to those who reported having at least one close friend, using items SS41, SS42, HH46, HH47) and the proportion of smokers in the household (for those not living alone, using SS39, HH45), with both variables categorized as none/less than half/more than half/all; whether or not never smokers were planning to try smoking in the month following the survey (SS10, HH36); and self-rated school performance (SS55, HH64).

The reader should bear in mind that, for the purpose of brevity, not all the findings discussed within the chapter are presented in tables or figures. Further, one is reminded of the small subgroup sizes (e.g., sample size for former smokers is 299) that affect the reliability of the estimates and also prevent detailed comparisons (see Chapter 2). Due to this reduction in sample size as data become partitioned into smaller subgroups, most of the tables and figures presented here are restricted to two-way analyses (e.g., smoking status by age). However, where a third variable (e.g., sex) proves significant, it is highlighted in the text. Any statements about significant subgroup differences are based on the 0.05 level of significance. Missing data or "don't know" responses to the items discussed in this chapter accounted for less than 10% of the total responses and thus were averaged into the other categories.

Results

Beliefs About Smoking and Health

Beliefs about the health effects of smoking are explored by the use of nine statements to which youth were asked to respond with yes, no, or don't know. Six of these items asked about negative health effects, and three addressed perceived psychological and physiological benefits of smoking.

Age and Sex

Almost all Canadian youth believe that tobacco is addictive (91%) and that environmental tobacco smoke (ETS) can harm non-smokers (90%); this is especially true for those aged 15-19 (Fig. 6-A). The majority of youth also agree that occasional smoking can endanger one's health (63%); however, those aged 13-14 are less likely to endorse this statement. Young women in the two older age groups (i.e., 15-17, 18-19) are more likely than their male counterparts to believe in the health danger of occasional smoking (see Table 6-1, at end of chapter, for distributions by sex and age).

The belief that quitting smoking reduces damage to one's health even after many years of smoking increases linearly with age (from 40% of 10-year-olds to 76% of 19-year-olds) (Table 6-1). A small proportion (one fifth) of youth of all ages believe that smokers can quit anytime they want. Similarly, few are likely to believe that one must smoke for many years before it hurts one's health. No significant sex differences exist with respect to these three health beliefs (Table 6-1).

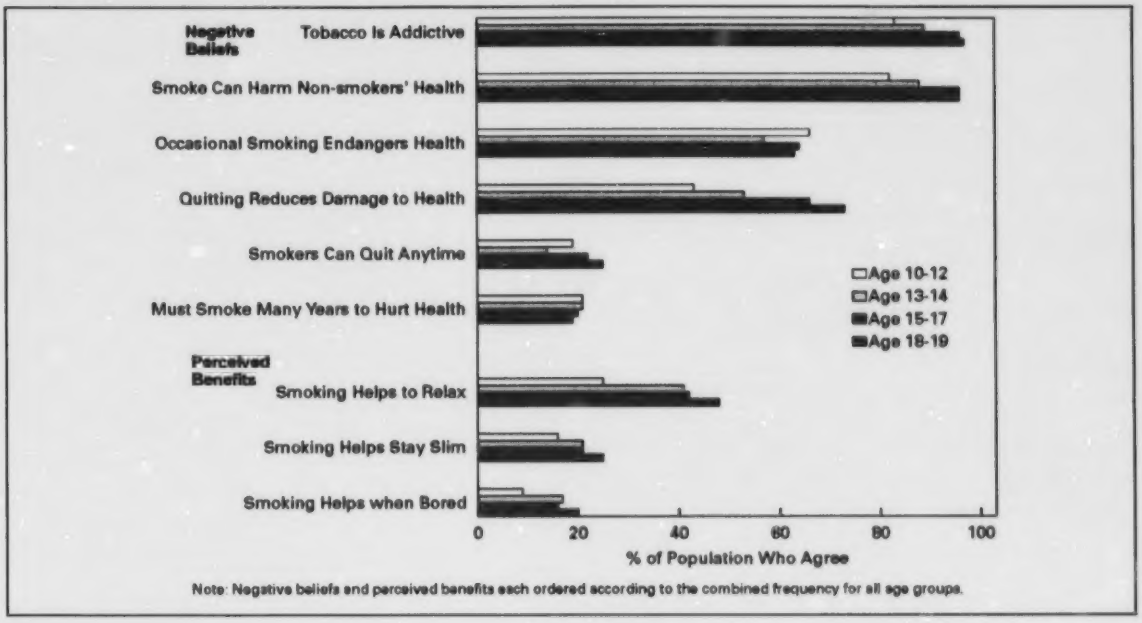
Regarding beliefs about the beneficial effects of smoking, just under half of youth over age 12 feel that smoking helps people to relax (Fig. 6-A). Less than one quarter believe that smoking helps people stay slim and that smoking helps people when they are bored. Boys and girls aged 10-12 are least likely to perceive any of the benefits of smoking. Beliefs about these three perceived functions of smoking do not differ between males and females in any age group (Table 6-1).

Type of Smoker

No statistically significant differences can be found among the smoking status categories regarding beliefs about the addictive quality of tobacco or the harmfulness of environmental tobacco smoke to non-smokers (Fig. 6-B).

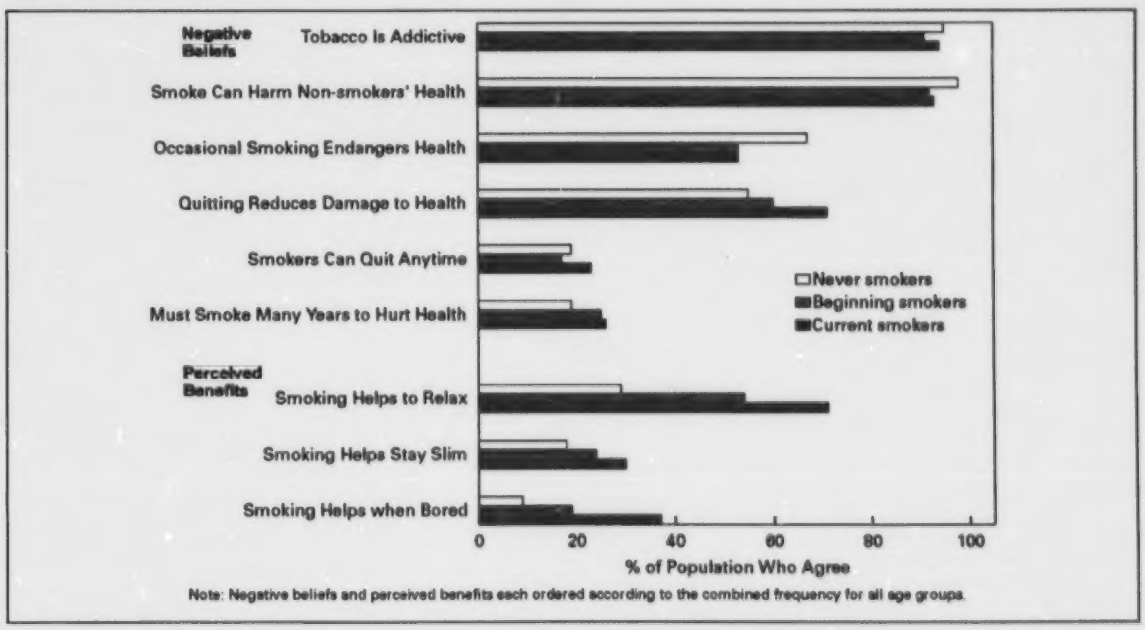
F2

Figure 6-A
Health Beliefs, by Age,
Canada, 1994



Note: Negative beliefs and perceived benefits each ordered according to the combined frequency for all age groups.

Figure 6-B
Health Beliefs, by Type of Smoker,
Age 10-19, Canada, 1994



Note: Negative beliefs and perceived benefits each ordered according to the combined frequency for all age groups.

Current and beginning smokers of all ages are less likely to believe that occasional smoking harms health, compared to those who have never smoked (Fig. 6-B). Interestingly, young men (age 15-19) who are current smokers are less likely to believe that occasional smoking can harm health, compared to their female counterparts (48% vs. 62%, respectively) (data not shown).

In the aggregate, current smokers are more likely to believe that quitting smoking after many years will reduce health damage, compared to never smokers (71% vs. 55%, respectively; Fig. 6-B). However, when age is taken into account, this difference becomes less prominent and holds only for the 15- to 17-year-old age group (75% of current smokers vs. 63% of never smokers agree) (Table 6-2). Note that a sizeable majority of former smokers (approximately 78%) over age 12 are highly likely to believe that quitting after many years of smoking will reduce health damage (Table 6-2).

Smokers and never smokers are equally unlikely to believe that smokers can quit at any time (roughly one fifth agree; Fig. 6-B). As might be expected, former smokers are most likely to believe that smokers can quit anytime (39% agree), although this difference is statistically marginal. No significant differences between the smoking status categories are found with respect to the belief that one must smoke for many years before one's health is affected.

Current smokers, when compared to their peers who have never smoked, are more likely to feel that smoking helps people relax, helps people stay slim, and helps when bored (Fig. 6-B). Beginning smokers tend to be more inclined to believe that smoking helps relax and helps when bored than are never smokers but less likely to hold these beliefs than current smokers. Beginners do not differ statistically from current smokers or never smokers regarding the perception that smoking helps people stay slim. It is important to note here that, surprisingly, no sex differences are found among current or beginning smokers on this issue (data not shown).

Planning to Smoke

Table 6-3 focuses on the smoking-related health beliefs of those never smokers who indicated whether or not they were planning to try smoking within the month following the survey and also those who did not know whether they would try smoking. Overall, two statistically significant differences in beliefs are evident. First, compared to those individuals who do not plan to try smoking, those who indicated that they are planning to smoke are twice as likely to believe that smoking helps when bored (Table 6-3). Second, those who are planning to try smoking (40%, moderate sampling variability) and those who are unsure about trying smoking (50%) are less likely to believe that occasional smoking endangers one's health, compared to those with no intention of trying smoking (69%). Other differences in health beliefs between those planning and not planning to try smoking emerged, but none reached statistical significance due to small sample sizes. Thus, at this point, the data can be used only to suggest the following trends: those who intend to try smoking may be more likely than those with no intention to smoke to believe (1) that one must smoke for many years before it damages one's health; (2) that quitting reduces damage even after many years of smoking; (3) that smoking helps people relax; and (4) that smoking helps people stay slim (Table 6-3).

Province and School Performance

Table 6-4 presents the health beliefs according to province of residence. No major interprovincial differences were found. However, it appears as though 10- to 14-year-old boys and girls in Quebec, when compared to the national averages, are less inclined to believe that occasional smoking harms health (only 50% agree) and that tobacco is addictive (only 74% agree). No consistent relationship between self-rated school performance and health beliefs was found (data not shown). Thus, in the aggregate, youth of all academic levels have similar opinions about the negative health effects and perceived benefits of smoking.

Attitudes Toward Smoking

Age, Sex, and Type of Smoker

In order to explore the social perceptions of smoking, youths were asked whether they thought "smoking is cool" and whether "it's nicer to date non-smokers." Overall, only 5% of youth feel that smoking is cool, and there is little variation between the age groups and the sexes (Table 6-5). However, one can see that current and beginning smokers (13%) are more inclined than never smokers (3%) to think smoking is cool. Younger current smokers (between 10 and 14 years of age) are more likely to think that it is cool to smoke (25%), compared to those aged 15-19 (10%). Moreover, although small sample sizes made statistical significance unlikely, the trend in the data suggests that young male current smokers are more likely to feel

that smoking is cool, compared to their female counterparts (e.g., just under one third of male current smokers aged 10-12 agree). No age or sex differences are found within the never-smoked category (Table 6-5).

Overall, 70% of youth aged 10-19 prefer to date non-smokers. Little variation is found by age and sex. Regarding smoking status, a similar pattern emerges as was found in the previous attitude item. That is, current smokers (36%) are less likely to agree that it's nicer to date non-smokers, compared to beginner (60%), former (60%), and never smokers (78%). Interestingly, male current smokers are more likely to prefer to date non-smokers, compared to their female peers (41% vs. 31%, respectively).

Planning to Smoke

Among those youths who plan to try smoking in the near future, just under one third of those aged 10-14 years feel that it is cool to smoke (data not shown). This proportion is significantly higher than the 2% of those of similar age who are not planning to try smoking and the 8% (moderate sampling variability) who are uncertain whether they will try smoking. Data for those aged 15-19 who intend to try smoking are unreportable due to small sample sizes.

Proportion of Others Who Smoke

Table 6-A presents the attitudes toward smoking according to the proportion of friends who smoke. It appears that as the proportion of friends who smoke increases, so does the perception that smoking is cool. This linear relationship, however, is apparent only for those aged 10-14 years. For example, there is a sevenfold increase in agreement with the notion that smoking is cool from having no friends who smoke to having all of one's friends smoke. This relationship does not hold for those aged 15-19.

Similarly, as the proportion of friends who smoke increases from none to all, youth of all ages are less likely to respond that it's nicer to date non-smokers (Table 6-A). It is important to note here that no direction of influence was tested; thus, it is not known whether friends who smoke influence one's attitudes toward smoking or whether someone who holds certain positive attitudes selects friends who smoke.

Table 6-A
Attitudes Toward Smoking, by Proportion of Friends Who Smoke and Age, Youth Who Have at Least One Close Friend, Canada, 1994

Proportion of Friends Who Smoke	Smoking Is Cool (% yes)	It's Nicer to Date Non-smokers (% yes)
Total, 10-19	**5**	**70**
10-14	7	69
15-19	4	70
None, 10-19	**2***	**81**
10-14	3*	78
15-19	#	86
Less than Half, 10-19	**5**	**71**
10-14	8	65
15-19	3*	75
More than Half, 10-19	**9**	**55**
10-14	14	53
15-19	6*	56
All, 10-19	**11**	**46**
10-14	21	41
15-19	6*	49

Note: Those who reported having at least one close friend constituted 94% of the total sample.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

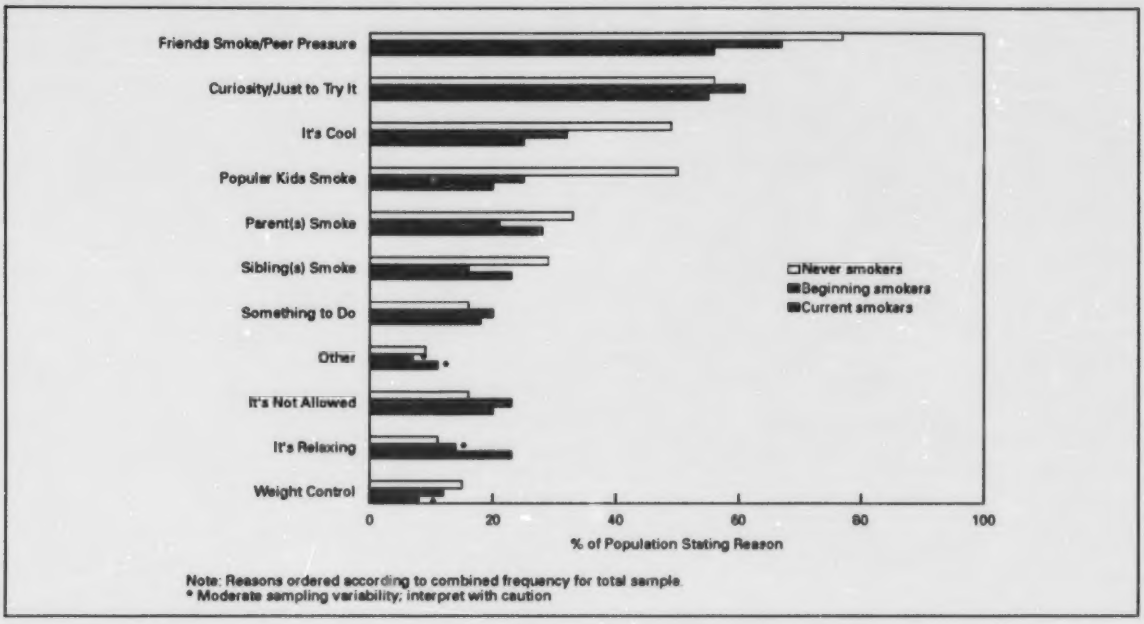
Table 6-B
Attitudes Toward Smoking, by Proportion of Smokers in the Household and Age, Youth Living with at Least One Person, Canada, 1994

Proportion of Smokers in the Household	Smoking Is Cool (% yes)	It's Nicer to Date Non-smokers (% yes)
Total, 10-19	**5**	**70**
10-14	6	69
15-19	4	71
None, 10-19	**3**	**77**
10-14	4	75
15-19	2*	79
Less than Half, 10-19	**5**	**68**
10-14	6	67
15-19	4*	70
More than Half, 10-19	**11**	**49**
10-14	16	53
15-19	7*	46
All, 10-19	**15**	**43**
10-14	20*	46
15-19	13*	42

Note: Youth who reported living with at least one person constituted 99.7% of the total sample.

* Moderate sampling variability; interpret with caution

Figure 6-C
Perceived Reasons Youth Start Smoking, by Type of Smoker, Age 10-14, Canada, 1994



A similar linear trend was found regarding the proportion of smokers in the household and attitudes toward smoking for both the 10-14 and 15-19 age groups. As seen in Table 6-B, as the proportion of smokers in one's household increases, the likelihood that one will see smoking as cool increases, while the preference to date non-smokers tends to decrease. This finding offers some support to the notion that others' smoking behaviour may be influential to youths' attitudes about smoking. This issue will receive further attention in the Discussion section and is addressed in more detail in Chapter 5.

Reasons Youth Start Smoking: 10- to 14-year-olds

Age

By far the most common reasons for taking up smoking endorsed by youth aged 10-14 are "their friends smoke (peer pressure)" and "curiosity/just to try it" (Table 6-6). Only these two reasons for smoking uptake produced significant differences between 10- to 12- and 13- to 14-year-olds (Table 6-6). Specifically, a higher percentage of 13- to 14-year-olds (78%) agree with the influence of friends on smoking uptake, compared to 10- to 12-year-olds (71%). "Curiosity/just to try it" is also a reason endorsed by significantly more 13- to 14-year-olds (63%) than 10- to 12-year-olds (52%).

Type of Smoker and Sex

The two most common reasons endorsed by current smokers, beginners, and those who have never smoked are "their friends smoke (peer pressure)" and "curiosity/just to try it" (Table 6-7). Both of these reasons are endorsed by just over half of current smokers; beginners also endorse these two reasons with equal frequency (Fig. 6-C). Among those who have never smoked, however, "their friends smoke (peer pressure)" is clearly the number one reason given for why people their age start to smoke (77%). The pattern of responses suggested for the small group of former smokers aged 10-14 is similar to that for those who have never smoked. Seventy-three percent of former smokers endorsed "friends smoke (peer pressure)" as a reason youth start, and 53% endorsed "curiosity." Both of these estimates are subject to moderate sampling variability, however (Table 6-7).

About one half of never smokers also agree that people their age start to smoke because "the popular kids smoke" and "it's cool." These reasons are endorsed by significantly fewer (less than one third) current and beginner smokers (Fig. 6-C). Again, the results for former smokers suggest more consistency with the response pattern seen for never smokers than for current smokers. Forty-two percent of former smokers endorsed "it's cool" as a reason youth start, although

this estimate is subject to moderate sampling variability and did not differ statistically from that for current smokers (Table 6-7).

Parental smoking as a reason youth start to smoke was endorsed by about one third of current smokers and never smokers alike (Fig. 6-C). Most of the remaining reasons explored within this 10-14 age group produced low endorsement rates and minimal differences between current smokers and never smokers (Fig. 6-C). A notable exception is that nearly twice as many young current smokers as never smokers indicate that youth start to smoke because "it's relaxing" (23% vs. 11%, respectively).

Finally, the main reasons given as to why youth start to smoke (i.e., their friends smoke, curiosity, the popular kids smoke, it's cool) are all likely to be endorsed more by females who have never smoked than by males who have never smoked (data not shown). However, there is little variation in the endorsement rate for these reasons between those males and females who currently smoke or have just begun to smoke. One exception is a substantial difference in the proportion of young female current smokers who endorse the "curiosity" reason, compared to young males who smoke (66% vs. 44%, respectively).

Other Classification Variables

For 10- to 14-year-olds, province and the other exploratory variables considered in this chapter (e.g., proportion of friends who smoke, parental smoking status, and planning to smoke; see Methods section) produced few meaningful differences, although there was a suggestive difference between those planning or not planning to smoke in the future. "Curiosity" as a reason youth start to smoke is endorsed by 77% of those planning to smoke, compared to 55% of those not planning to smoke. However, the percentage of young never smokers who intend to try smoking is small, and, thus, this difference did not reach statistical significance.

Reasons Youth Start Smoking: 15- to 19-year-olds

Age and Sex

The most common reasons cited to explain why youth start to smoke volunteered by those aged 15-19 were because their friends smoke (peer pressure) (70%), it's cool (28%), and curiosity/just to try it (22%; Table 6-6). None of the reasons volunteered by this age group produced finer distinctions between the 15- to 17- and 18- to 19-year-olds (Table 6-6). Further, unlike the younger age group (particularly the never smokers), comparisons between the males and females aged 15-19 failed to reveal any appreciable differences as to beliefs about why youth start smoking. This absence of differences between the sexes holds for both current smokers and never smokers alike (data not shown).

Type of Smoker

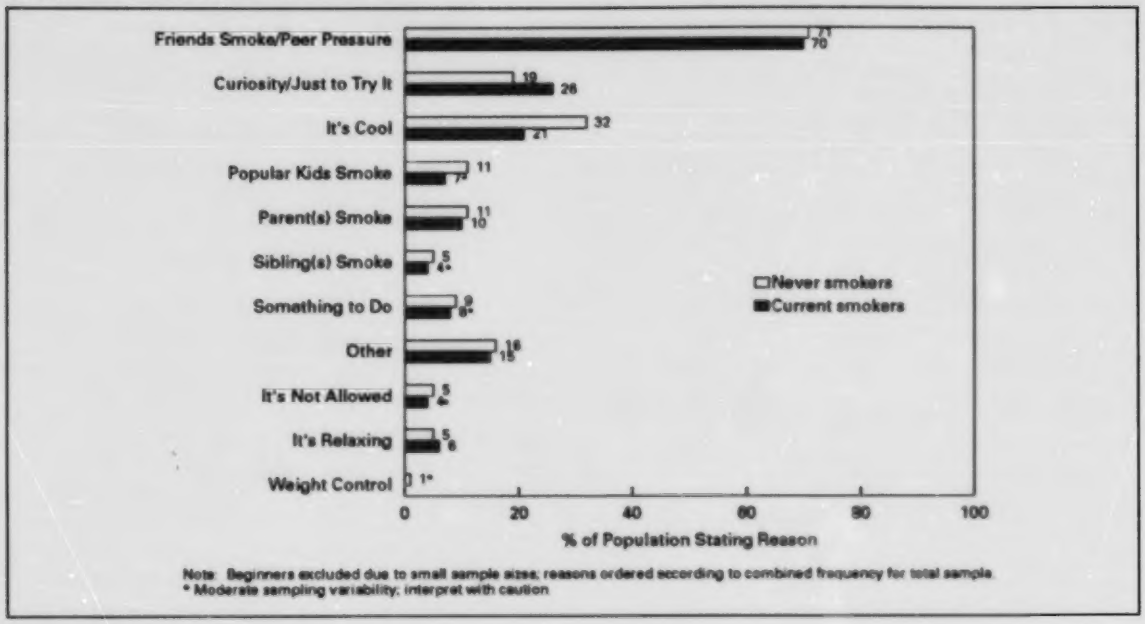
For both current smokers and never smokers, the most common reason volunteered for why youth start smoking is "their friends smoke (peer pressure)" (Fig. 6-D). "Curiosity" and "it's cool" are also common reasons given by both current smokers and never smokers in this age group. However, current smokers are more likely to mention "curiosity" as a reason youth start (26%), compared to those who have never smoked (19%). Conversely, "it's cool" as a reason youth start was mentioned by more never smokers (32%) than smokers (21%). Most of the remaining reasons youth start to smoke, listed in Figure 6-D, are mentioned by relatively few 15- to 19-year-olds. It should be noted that about 15% of both current smokers and never smokers in this age group are likely to mention reasons in the "Other" category (Fig. 6-D).

The small number of former smokers and beginners aged 15-19 resulted in few stable estimates for these smoking status groups. However, results do indicate that the most common reasons given by these groups to explain why youth start to smoke are similar to those given by current smokers and never smokers – "friends smoke (peer pressure)" followed by "curiosity" and "it's cool." There is one other finding that should be highlighted: about one half of former smokers (49%) mention "curiosity" as a reason youth start to smoke, a proportion substantially higher than that for current smokers, never smokers, and beginners (Table 6-7).

Other Classification Variables

Most of the reasons youth start to smoke were volunteered by too few 15- to 19-year-olds to support further exploration of the data with respect to such variables as province, proportion of friends who smoke, and planning to smoke. For those initiation reasons with comparatively high recall rates (e.g., friends smoke, curiosity, it's cool), some stable comparisons were possible, but no meaningful differences were observed.

Figure 6-D
Perceived Reasons Youth Start Smoking, by Type of Smoker, Age 15-19, Canada, 1994



Note: Beginners excluded due to small sample size; reasons ordered according to combined frequency for total sample.
* Moderate sampling variability; interpret with caution.

Table 6-C
Most Common Reasons Youth Start Smoking, by Age and Type of Smoker, Canada, 1994

Most Common Reasons Youth Start to Smoke	10- to 14-year-olds		15- to 19-year-olds	
	Current Smokers (rank)	Never Smokers (rank)	Current Smokers (rank)	Never Smokers (rank)
Friends smoke/ peer pressure	1	1	1	1
Curiosity	2	2	2	2
It's cool	4	4	3	2
Popular kids smoke		3		5[a]
Parent(s) smoke	3	5	5	5[a]
Sibling(s) smoke	5[b]			
Other			4	4

a. Percentages volunteering these reasons were the same (tie).

b. "It's relaxing" as a reason youth start was also ranked 5th for this group only.

Reasons Youth Start Smoking: Comparing 10-to 14- and 15- to 19-year-olds

A comparison of the percentages displayed in Figures 6-C and 6-D shows strong differences between the younger (10-14) and older (15-19) age groups. These differences are likely due to the different questioning methods adopted for these two age groups.

Youth aged 10-14 were prompted with a list of possible reasons youth smoke, resulting in nearly half (47%) endorsing four or more of the reasons listed. In contrast, most older youth (15-19), who were unaided and unprompted in their response to this question, volunteered either one (51%) or two (33%) reasons for why youth start to smoke. However, despite these methodological differences, a comparison of the rank order of reasons youth start (based on the rates observed) reveals similarities for these two age groups.

Table 6-C shows that "friends smoke (peer pressure)" and "curiosity" are regarded as important reasons youth start to smoke for both 10- to 14- and 15- to 19-year-olds. Starting to smoke because it is perceived as "cool" is another important reason given by 10- to 14- and 15- to 19-year-olds alike, particularly among those who have never smoked. The influence of parents' smoking status on taking up smoking was not ranked as highly as these other reasons, although it still

emerged as one of the top five reasons given as to why youth start smoking for all groups presented in Table 6-C.

Beliefs About Cigarette Pack Warning Labels

Almost all Canadian youth who have seen cigarette pack warning labels believe the health warnings they read (97%), and a sizeable majority (85%) agree that packs should, indeed, have such labels (Table 6-8). Overall, little variation exists among the age groups and sexes with respect to these two issues (data for sexes not shown).

However, when smoking status is examined, it appears that current smokers aged 10-14 (88%), relative to their peers who don't smoke (98%), are less inclined to believe the warnings they read (Table 6-8). Further, current smokers aged 10-14 and 15-19 are less likely to agree with the notion of packs having warning labels at all, compared to beginning and never smokers of the same age.

Beliefs About Tobacco Corporation Sponsorship

The YSS included a series of questions designed to gather responses to tobacco corporations' sponsorship of sporting (e.g., car racing, tennis) and cultural (e.g., ballet, concerts, fashion shows) events. Specifically, these items addressed whether or not youth agree that the sponsorship billboards and signs are a way of advertising particular events, encouraging sports and culture in general, encouraging people to smoke, advertising particular brands of cigarettes, or promoting goodwill toward the tobacco corporations (this last item was not included in the School Survey owing to its complexity). The reader is reminded that these items were administered only to those who recalled having seen sponsorship ads (10% of total sample).

Age and Sex

Over half (56%) of all youth aged 10-19 who have seen sponsorship advertisements by tobacco corporations agree that these ads are a way to advertise specific events, and just under half (47%) agree that the ads encourage sports and culture in general (Table 6-9). Figure 6-E, however, reveals that these rates of agreement vary dramatically by age. The belief that these ads are a way of promoting specific events increases linearly from 38% of 10- to 12-year-olds to 73% of 18- to 19-year-olds. The belief that these ads are a way of encouraging sports and culture increases dramatically between the 13-14 (35%) and 15-17 (60%) age groups.

Figure 6-E also shows that just over half (55%) of all youths queried agree that tobacco corporations' billboards and signs do, in fact, encourage smoking behaviour. Interestingly, opinions on this matter do not vary as a function of age. A sizeable majority of youth (83%) who have seen such ads believe that they promote a specific cigarette brand. Agreement increases sharply until age 15, at which point no major differences exist among the older ages; those aged 15 and over are all highly likely to perceive sponsorship ads as an indirect form of advertising cigarettes. A majority (75%) of those aged 15-19 also agreed that the tobacco corporations do attempt to promote goodwill toward themselves by sponsoring sporting and cultural events. No marked sex differences exist with respect to any of the above beliefs (data not shown).

Type of Smoker

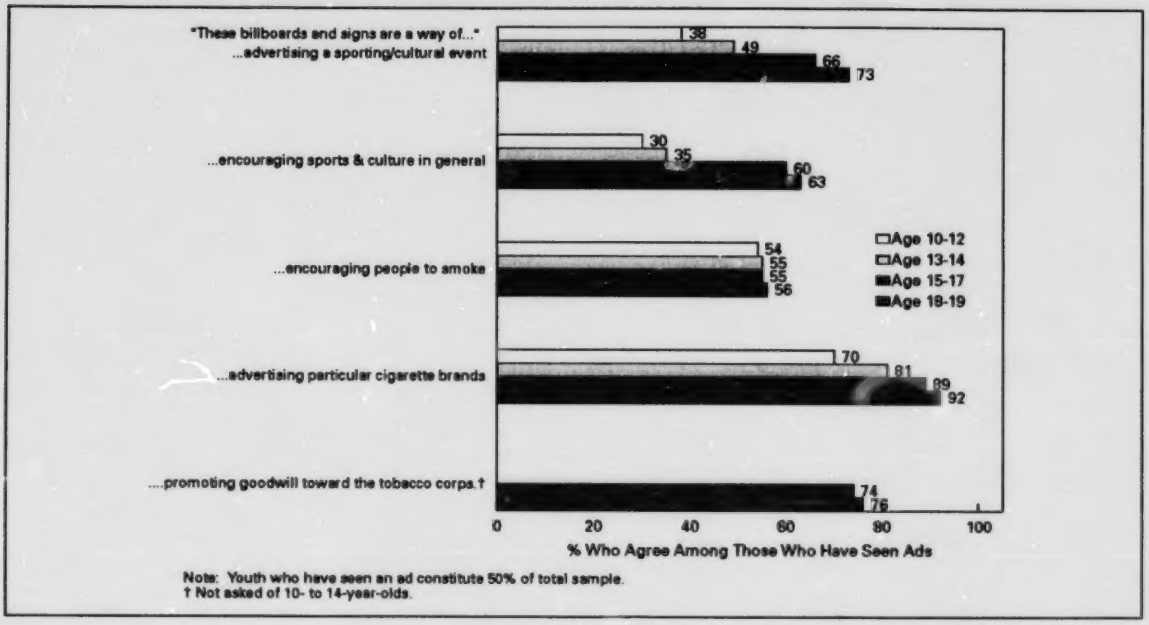
Table 6-9 also shows that current smokers between the ages of 10 and 19 are more likely to see these sponsorship ads as a way of advertising particular events, compared to those who have never smoked (67% vs. 53%, respectively). In addition, more current smokers (60%) see these ads as a means of encouraging sports and culture in general, compared to never smokers (44%). Conversely, current smokers mainly between the ages of 15 and 19 are less likely to see these sponsorship ads as vehicles for encouraging smoking, compared to their counterparts who have never smoked (42% vs. 62%, respectively) (Table 6-9). No marked differences by smoking status classification were found for beliefs about tobacco sponsorships as a method of promoting particular cigarette brands or of promoting goodwill toward the tobacco corporations (i.e., are all equally likely to agree).

Discussion

Beliefs About Smoking and Health

An overwhelming majority of Canadian youth understand the addictive nature of tobacco and the harmful effects of environmental tobacco smoke. Youth understand that, while quitting smoking will reduce health damage, it is not necessarily easy to quit. Young people also believe that one does not have to smoke for many years before health damage occurs and that occasional smoking can harm one's health.

Figure 6-E
Beliefs About Tobacco Corporation Sponsorship Advertisements, by Age, Youth Who Have Seen an Ad, Canada, 1994



Note: Youth who have seen an ad constitute 50% of total sample.
† Not asked of 10- to 14-year-olds.

That these beliefs are commonplace may be the result of pervasive health campaigns, education programs, and public policies (e.g., pack warning labels, smoking restrictions in public places) that convey such messages about the harm of tobacco to oneself and others, although there are no data in the YSS to test this.

Negative health beliefs were also explored in the fourth cycle of the Survey of Smoking in Canada (SOSIC).[16] The patterns of responses for the 15- to 19-year-olds in the two surveys was similar, with one notable exception. Youth in the YSS were less inclined to indicate that quitting smoking is beneficial to health (69% YSS vs. 89% SOSIC). This difference may be due to the different wording used in the two surveys: the statement used in the YSS was "quitting reduces health damage even after many years of smoking," whereas the SOSIC used "quitting can improve people's health even after they have smoked for many years." This suggests that "reducing health damage" and "improving health" may be distinct concepts that elicit different responses.

From the questions asked in the YSS, young Canadians who smoke are just as likely to hold negative beliefs about smoking and its health effects as are former and never smokers. One exception, however, is that smokers (current and beginner) are less likely to believe that occasional smoking endangers one's health, compared to their non-smoking peers – a finding that corresponds to that found among the youth, as well as the adults, surveyed in SOSIC.[16]

The finding that young Canadians who smoke seem to acknowledge the negative health effects of this behaviour is quite unexpected in light of past research showing a tendency among young smokers to dismiss or minimize the health consequences of smoking.[17] It is unclear why young Canadian teens and preteens who smoke do not seem to dismiss the negative aspects of smoking. It could be due to the influence of the ubiquitous antitobacco message, which makes it difficult to deny any deleterious health effects of smoking. In particular, health warnings on tobacco packages are much more prominent and stark in Canada than, for example, in the United States.

Despite the recognition of the negative health effects of smoking, young smokers in Canada are, at the same time, much more likely to perceive positive functions of smoking (i.e., it's relaxing, helps when bored, and controls weight) than their non-smoking peers. Nearly three quarters of young smokers believe that smoking helps people relax. This tendency among smokers to endorse the beneficial aspects of smoking is consistent with past research.[17]

Unfortunately, owing to the cross-sectional nature of the YSS data, the direction of influence between beliefs and behaviour cannot be tested. That is, it is unknown whether beliefs about the perceived benefits of smoking precede smoking behaviour (i.e., are a risk factor for smoking uptake), whether smoking behaviour (or the need to justify this behaviour) influences beliefs, or whether both beliefs and behaviours impact on each other. Prudent public policy would assume that beliefs about benefits are a risk factor for smoking and would take measures to counteract such beliefs.

The hypothesis that positive beliefs may be antecedents to smoking uptake finds some support in the YSS, when beginning smokers are considered. It was found that beginners, who by definition have only recently started to experiment with smoking, are more likely to endorse the positive functions of smoking than are never smokers. Those who intend to smoke in the short term were also more likely than those with no intention to smoke to hold positive expectations about the functions of smoking (e.g., helps when bored and to relax). These findings are consistent with the idea that certain beliefs about the utility of smoking may be risk factors for future experimentation.

However, the YSS also showed that a greater proportion of current smokers, compared to never smokers and beginners, endorse the positive benefits of smoking, a finding consistent with the notion that smoking experience may determine, or strengthen, such beliefs. Apart from justifying or excusing a behaviour that they acknowledge is harmful to health, not to mention one that is increasingly becoming socially unacceptable, current smokers may endorse the functional aspects of smoking (e.g., relaxation, weight control) because these may be real physiological and psychological consequences of regular smoking that serve to maintain this behaviour. [4,5,10] The current smokers in the YSS may have reached the addiction stage of smoking (for discussion, see *A Report of the Surgeon General* [17]); hence, their recognition of the positive physiological and psychological effects may simply reflect their addiction. Indeed, a key symptom of addiction is the avoidance of withdrawal effects such as, in the case of nicotine, irritability, restlessness, and weight gain. [5] This may also explain why it is that beginning smokers do not endorse the positive aspects of smoking with the same frequency as current smokers. It is unlikely that these young beginners have had enough experience with tobacco to have become physically dependent. [17]

Thus, we have some indication from the YSS that beliefs about the positive functions of smoking may increase the risk of experimentation and that regular smoking behaviour may, in turn, reinforce these positive beliefs. Further research that examines the relationship between positive beliefs of smoking and duration of smoking, as well as exploring which beginning smokers become regular smokers, may shed some light on this issue surrounding smoking experimentation, maintenance, and beliefs about the utility of smoking.

Attitudes Toward Smoking

More young teen and preteen smokers feel that smoking is "cool," compared to older smokers and to those who do not smoke. One explanation for this may be that the older smokers (i.e., 15-19) may have smoked for some years and passed the phase of smoking for image-enhancing purposes, which occurs during initiation and experimentation, and now smoke because they are addicted. This point of becoming addicted to tobacco among the older smokers coincides with the desire to quit (see Chapter 4) and the feeling that it's no longer a "cool" thing to do. [17]

Seemingly, many young people take up smoking because they see it as an image-enhancing mechanism that will help them look attractive to their peers. This is evidenced by the finding in the YSS that those who intend to try smoking are more likely to agree that it's cool to smoke, compared to those with no intention. The irony is that the majority of youth – mainly non-smokers – feel that it's preferable to date someone who does not smoke.

Findings in the YSS also support the notion that the social influence of others' smoking behaviour is an important factor influencing young people's attitudes toward smoking. It was shown that the greater the proportion of friends and family members who smoke, the more likely that smokers and, to a lesser degree, non-smokers feel that smoking is cool. This influence pertains only to those who are at the impressionable ages between 10 and 14.

Reasons Youth Start Smoking

Despite different questioning methods, the major reasons given for why youth start to smoke appear to be similar for the 10- to 14- and 15- to 19-year-olds. The smoking behaviour of friends, curiosity, and starting to smoke because it is perceived as "cool" are the most common reasons given by both these age groups. Consistent with previous research, [17] the

smoking behaviour of friends is, by far, the most common reason given for why youth start to smoke. This study also found curiosity to be a particularly important reason among current smokers and former smokers; curiosity is often the most common reason given by smokers to explain why they smoked their first cigarette.[11,17]

The comparatively high endorsement of "it's cool" as a reason youth start to smoke is also consistent with past research that has stressed that youth often initiate smoking behaviour to help enhance their social image.[17] What is somewhat surprising in this study, however, is the strong contrast in agreement rates between current smokers and never smokers concerning such reasons as "it's cool" and "the popular kids smoke." Young current smokers (10-14) are much less likely than their never-smoking counterparts to endorse these image-enhancing reasons for starting to smoke – a surprising finding given that more young current smokers than non-smokers hold the attitude that smoking is a "cool" behaviour. The lower endorsement rate of these image-enhancing reasons among current smokers may reflect a reluctance on their part to attribute smoking initiation to external influences rather than personal choice, although this was not tested in the survey.

That current smokers may be less likely to attribute initiation to external influences may also explain why far fewer young smokers (age 10-14) than never smokers endorse "friends smoke (peer pressure)" as a reason youth start. Inclusion of the term "peer pressure" to describe the influence of friends in the school-based sample may have been an important factor in the rejection of this reason by many young current smokers. Qualitative research suggests that youth may define "peer pressure" quite narrowly – akin to "active compulsion" – which few may see as reflecting the actual social dynamics of friends' influence.[1,3] Similarly, since the responses "friends smoke" and "peer pressure" were not treated as distinct concepts when older youth (age 15-19) were interviewed, exploration of this issue within this group is not possible.

Finally, there are also some interesting inferences that can be drawn from those reasons youth start smoking that are infrequently endorsed. As mentioned previously, over 70% of current smokers, regardless of their age, agree that smoking helps people relax, although very few current smokers gave this as a reason they believe youth start to smoke. Similarly, over one third of current smokers agree that smoking helps relieve boredom, although far fewer current smokers feel that youth start to smoke because it's "something to do." Finally, about one third of current smokers see smoking as a way to help stay slim, although few see this as a reason people start to smoke. These findings provide some support for the notion that the reasons youth give for starting to smoke are probably quite different from the reasons they continue to smoke (maintenance). As discussed previously, such divergence between experimental and maintenance stages of smoking may arise from a variety of influences, such as continuing to smoke because of the addictive nature of nicotine, experiencing benefits related to smoking, as well as the development of a belief system to justify an admittedly harmful habit.

Beliefs About Cigarette Pack Warning Labels

Just about all Canadian youth believe the warning messages they see on cigarette packages, and a majority also feel that these labels belong on cigarette packs. This latter finding is corroborated by the results from a similar question in the National Population Health Survey (NPHS) carried out in 1994-95, which targeted Canadians over age 12.[15] Like the YSS, no major age variations were found in agreement with warning labels, with a sizeable majority of children, teens, and adults all supporting the placement of health warnings on cigarette packs. However, as was found in the YSS, the NPHS showed that current smokers in all age groups are less likely to support pack labels than their non-smoking peers.[15]

Beliefs About Tobacco Corporation Sponsorship

At the time of the YSS, it was illegal for Canadian tobacco corporations to advertise tobacco products, but it was, and still is, legal and customary for the tobacco industry to sponsor sporting and cultural events. Such event marketing tactics operate through brand-name sponsorship (e.g., Player's Ltd. Racing, Matinée Fashion Foundation, du Maurier Jazz Festival), thereby linking brand names (including brand colours, logos, trademarks) with a particular lifestyle or activity. Many tobacco sponsorship advertisements are specifically designed to appeal to the youth market by the use of exciting and glamorous imagery.[14] Consequently, such use of positive imagery implies that tobacco products are acceptable, prevalent, and desirable.

From the YSS, it appears that Canadian youth are sophisticated and understand the intentions of the tobacco corporations. That is, the majority of youth who have seen tobacco company sponsorship advertisements believe that such ads are a way for corporations to promote a particular brand of cigarettes, as well as a way to enhance their public image.

However, the subtle nature of the tobacco corporations' tactics may be reflected in the finding that only a slight majority feel that sponsorship ads encourage smoking. Interestingly, current smokers of all ages are less inclined to believe that sponsorship ads encourage smoking, compared to never smokers. Once again, this may indicate that current smokers are less likely than non-smokers to attribute smoking behaviour to influences from external sources. Alternatively, the ambiguous wording of the question may have been taken quite literally by some youth, particularly smokers. That is, "encouraging people to smoke" may have been interpreted by some as an attempt to get people to *smoke more*, rather than as an attempt to get people to *start to smoke*. Such differing interpretations may have led to this almost even split in agreement and disagreement with this statement.

Implications for Regulation and Legislation

A key component of the Canadian government's tobacco control strategy is to communicate to the public the health hazards of tobacco use. [7] Cigarette pack health warning labels represent this strategy. The present survey supports the notion that these warning labels are an effective tactic, as almost all youth regard them as credible, and many have good recall of the health problems specified in the warnings (see Chapter 7). Interestingly, this high level of credibility existed in the absence of any attribution in these warnings, an omission criticized in the Supreme Court ruling of 1995. A logical extension of this strategy would be to mandate that health warning labels be placed in tobacco corporations' sponsorship advertisements in Canada, especially given that the majority of Canadian youth see sponsorship ads as a guise for cigarette brand advertising. Of course, such perceptions would change if generic packaging of tobacco products were mandated, thus breaking the visual link between sponsorship ads and product packaging. Further, that this form of advertising is perceived as indirect cigarette advertising offers some justification to the government's proposed measures to apply the same regulations on cigarette advertising to sponsorship advertising, if indeed sponsorship is permitted to continue. [7]

This survey highlights the need for the tobacco control strategy to prohibit, restrict, or, at the very least, counter the messages about the positive physiological and psychological benefits of smoking seen in the sponsorship ads in Canada (and recently in Canadian cigarette ads), as well as in images in American magazine cigarette ads that infiltrate the Canadian market. Further, since pack warning labels are seen as credible and have high exposure (see Chapter 7), consideration should be given to the placement of other non-health messages on cigarette packages (e.g., smoking causes bad breath and wrinkled skin; smoking is not cool; smoking leads to dependence, not independence), enabling us to target the psychosocial risk factors that play a significant role in smoking uptake.

The strong influence of friends and curiosity on initial experimentation with cigarettes is not likely to be effectively countered. This suggests that modifications to the product may deserve consideration. For example, a cigarette that tastes like a cigar may be tried to satisfy curiosity, but may be less likely than currently available cigarettes to lead to continued use. Research has shown that many non-smokers who have tried smoking report that they did not continue because they did not like the taste or the smell. [3,8]

Implications for Education and Message Promotion

The target population for the YSS represents the first generation of Canadians to be inundated with messages about the deleterious health effects of smoking through school smoking programs [9] and media. While there is still variability in terms of who is being taught in school (see Chapter 7), these young people seem to understand the negative health effects of smoking. However, given that there are still substantial numbers of youth smoking in Canada, what may be required are new and innovative education curricula that counter the perceptions of the positive physiological functions of smoking (e.g., relaxation) seen among smokers and those non-smokers contemplating experimentation and that provide information on alternative safe methods for achieving such results.

A certain degree of ambiguity surrounds what messages about smoking and cessation should be given to smokers and non-smokers. Specifically, the fact that the majority of current smokers and never smokers tend to equally agree that quitting smoking reduces health damage even after many years of smoking, on

the surface, seems promising. However, some may feel that a desirable result would be to have divergence – that is, to have never smokers believe that quitting *does not* diminish the harmful health effects due to years of smoking so that they are deterred from starting. For example, in the YSS, there was a tendency (not statistically significant) for never smokers who plan to try smoking to believe that quitting smoking reduces health damage even after years of smoking. This belief may play a significant role in non-smokers' decision to try smoking, even while it may encourage established smokers to quit.

Alternatively, the different wording of this question in the YSS ("quitting reduces health damage") and SOSIC ("quitting smoking can improve people's health")[16] and the pattern of results observed (see earlier discussion) may reflect an understanding among some youth today that a consequence of quitting is improved health, but that smoking may also cause permanent damage. Instead of trying to selectively influence the beliefs of current smokers and never smokers, an understanding of both these points may not only serve to deter never smokers, but also help to motivate current smokers to quit sooner rather than later.

With respect to beliefs about addiction and cessation, it is encouraging that never smokers perceive smoking as highly addictive and as a behaviour that is difficult to stop. Such beliefs may act as a deterrent for never smokers. Among current smokers, however, it may be important to reinforce the belief that while it is difficult to quit, it is not impossible. Attempts to stimulate cessation in this manner, along with ensuring access to effective cessation programs, will provide current smokers with realistic expectations when they decide to quit, as well as the support necessary to achieve their goal.

These issues underscore the need to have education programs and messages that are tailored to specific audiences, such as established smokers and never smokers at risk for experimentation. Programs for smokers should place emphasis on the feasibility and benefits of cessation, while prevention programs should focus on deterring youth from experimenting. Based on the YSS data, such prevention programs should emphasize the message that occasional smoking can damage health (i.e., via addiction) in efforts to prevent experimentation with smoking, given the tendency for beginning smokers, as well as those who plan to try smoking, to believe that occasional smoking is not harmful. In addition, prevention could be promoted with the message that the majority of young Canadians prefer to date non-smokers rather than smokers. Of course, it should not be forgotten that such programs must also address psychosocial risk factors, such as the perception of smoking as an image-enhancing mechanism, which play a role in smoking uptake.[17]

There are indications from the findings concerning perceived reasons youth start smoking that current smokers are less inclined to attribute smoking uptake to external influences, such as influence of friends or social image enhancement. In addition, current smokers are less likely than never smokers to see sponsorship ads as encouraging smoking behaviour. These results, coupled with the fact that current smokers seem to endorse the physiological benefits of smoking, suggest the importance of internal attributions on smoking maintenance. Previous research has found similarly that as smoking becomes a habitual (addictive) behaviour, the internal (maintenance) reasons for continuing to smoke become particularly important.[4,12]

The minimizing of external influences by current smokers may have important implications for how programmers approach such issues as prevention and cessation. For example, there are indications that one's social environment may play an important role in whether or not attempts to quit are successful.[1,2,6] As described in Chapter 5, not only do most young established smokers want to quit, many have made multiple attempts to quit. Failure to recognize or admit to the influence of the social environment with respect to initiation of smoking may translate into a reduced acceptance of the impact of one's social environment on the maintenance of smoking behaviour, despite other research that has shown such influences continue to play a role, particularly when smokers attempt to quit.[1,2,6] These issues should be considered when developing the structure and content of cessation programs.

Ironically, aggressive marketing by tobacco companies may be the ultimate form of external influence on smoking, but one that current smokers are likely to realize as such. However, there may be some value in making this type of influence apparent to young never smokers.

Implications for Future Monitoring and Further Research

There are several possible additional analyses that could be conducted on the YSS data in order to gain a better understanding of youth smoking. First, it would be important to know which of the many attitude and belief items discussed in this chapter have the strongest predictive value in relation to smoking behaviour. The relative importance of the variables and combinations of variables would provide information that could be useful for program design.

Second, factor analysis could be carried out in order to determine whether the attitude and belief items loaded on a relatively small number of factors. Attitude and belief scales can be created, followed by analyses that could incorporate these scales as independent measures in models in which smoking behaviour was the outcome. These scale scores could also be used as dependent variables, and the relationship of sociodemographic and other factors to the scale scores could be examined. Any and all of the above models could be constructed for males and females separately, as there is a substantial body of knowledge supporting the contention that the sexes differ with regard to smoking and the purpose that smoking serves for the individual.[13] Attitude scales refined through such analysis would be important candidates for continued monitoring in future surveys on youth smoking.

Other issues arising within this chapter that merit further investigation include explanations as to why it is that some young teens and preteens see smoking as a self-enhancing mechanism, and others do not. Could this be due to low self-esteem, self-efficacy, other personality factors, or sociodemographic variables?[17] Furthermore, the direction of influence between positive attitudes and beliefs about smoking and smoking behaviour needs to be elucidated, taking into account such factors as how long one has been smoking, how much one smokes, and whether or not one has become addicted.

Regarding the reasons as to why youth start smoking, it is important that future monitoring and research distinguish between "peer pressure" and "peer influence." These two concepts, although similar, have different implications. Although some may not see a separation between these two ideas (e.g., the influence of friends translates into environmental pressures to smoke), previous research has shown that youth do see a distinction.[1,3] Since it is youth behaviour we are trying to understand, their perception of these terms seems necessary in determining how to prevent uptake and stimulate cessation. The relatively large "other reasons" category for the older youth in the YSS suggests the possibility that other important issues related to onset may have been overlooked. Along with exploring other potential reasons for onset, future monitoring should also include perceived reasons as to why established smokers maintain their habit, as well as reasons young non-smokers do not smoke.

Given that awareness of the negative health consequences of smoking does not seem to be a strong deterrent for some youth (see also Chapter 7), researchers should focus more on the social functions served by smoking. Understanding the social context of smoking experimentation (and maintenance) is one way to gain insight into the social utility of smoking. Specifically, it is important to know what type of environment youth are in, who they are with, and what they are doing when they decide to try smoking. Special attention to beginning smokers is also needed, as little is known about what distinguishes those who do and do not go on to become regular smokers. This type of information could be useful to education prevention programs.

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Table 6-1
Health Beliefs, by Sex and Age
Canada, 1994

		Negative Health Beliefs (% yes)						Perceived Benefits (% yes)		
	Pop. Est. ('000)	Must Smoke for Many Years Before Hurt Health	Occasional Smoking Endangers Health	Quitting Smoking Reduces Damage Even After Years	Tobacco Is Addictive	ETS Is Harmful to Non-smokers	Smokers Can Quit Anytime	Smoking Helps People when They Are Bored	Smoking Helps People Relax	Smoking Helps People Stay Slim
Total, 10-19	**3,881**	**20**	**63**	**58**	**91**	**90**	**20**	**15**	**38**	**20**
10-14	1,949	21	62	47	85	84	17	12	32	18
15-19	1,932	20	64	69	96	96	23	18	45	23
10-12	1,166	21	66	43	83	82	19	9	25	17
13-14	783	21	57	53	89	88	14	17	41	21
15-17	1,149	20	64	66	96	96	22	16	42	21
18-19	783	19	63	73	97	96	25	20	48	25
10	391	22	70	40	79	76	23	6	20	16
11	388	22	65	43	85	84	18	9	24	16
12	388	20	63	46	85	85	16	11	32	18
13	391	22	59	51	89	87	14	18	41	21
14	391	21	55	56	89	90	14	17	41	20
15	385	20	67	60	95	96	20	13	38	18
16	380	22	63	68	96	96	20	18	44	23
17	383	19	62	70	98	96	24	18	45	23
18	389	21	63	71	97	97	22	17	49	23
19	394	16	64	76	97	96	27	22	47	26
Males, 10-19	**1,986**	**23**	**61**	**60**	**89**	**90**	**19**	**17**	**40**	**22**
10-14	997	23	63	50	83	85	17	13	33	17
15-19	989	23	59	71	96	96	21	21	47	23
10-12	596	24	67	46	81	83	18	9	27	16
13-14	401	22	57	55	85	87	15	19	40	20
15-17	589	23	60	68	95	96	19	18	44	22
18-19	400	23	57	75	97	96	23	24	51	26
Females, 10-19	**1,896**	**18**	**65**	**56**	**93**	**91**	**21**	**13**	**37**	**21**
10-14	953	19	61	44	88	84	17	11	31	19
15-19	943	17	69	67	97	97	25	14	42	22
10-12	571	18	64	40	85	80	20	8	23	17
13-14	382	20	57	51	93	90	13	16	42	22
15-17	560	18	69	64	97	97	24	14	41	21
18-19	383	15	70	72	97	97	26	16	45	24

Table 6-2
Health Beliefs, by Type of Smoker and Age, Canada, 1994

		Negative Health Beliefs (% yes)						Perceived Benefits (% yes)		
	Pop. Est. ('000)	Must Smoke for Many Years Before Hurt Health	Occasional Smoking Endangers Health	Quitting Smoking Reduces Damage Even After Years	Tobacco Is Addictive	ETS Is Harmful to Non-smokers	Smokers Can Quit Anytime	Smoking Helps People when They Are Bored	Smoking Helps People Relax	Smoking Helps People Stay Slim
Current Smokers, 10-19	**580**	**26**	**53**	**71**	**94**	**93**	**23**	**37**	**71**	**30**
10-14	128	31	47	55	85	85	15*	39	72	30
15-19	452	24	55	76	97	95	26	36	71	31
10-12	29	20*	56	47	75	82	#	30*	59	30*
13-14	99	34	45	57	88	86	15*	42	76	29
15-17	225	26	54	75	97	96	26	35	72	27
18-19	226	22	55	76	96	95	[illegible]	38	70	35
Beginning Smokers, 10-19	**256**	**25**	**53**	**60**	**91**	**92**	**1?**	**19**	**54**	**24**
10-14	138	26	47	54	88	87	15	19	52	23
15-19	118	24	60	67	95	98	20	19	56	25
10-12	51	29*	51	54	79	85	19*	19*	52	24*
13-14	87	24	44	53	92	88	12*	19*	52	22*
15-17	75	25*	63	66	92	99	19*	19*	60	20*
18-19	44	22*	54	70	98	98	23*	20*	51	34*
Former Smokers, 10-19	**56**	**29***	**40**	**75**	**94**	**97**	**39**	**38**	**56**	**23***
10-14	9	#	#	64*	86	89	#	#	66*	#
15-19	47	#	41*	77	95	98	42*	37*	55	21*
10-12	#	#	#	#	#	#	#	#	#	#
13-14	6	#	#	79*	85	94	#	#	67*	#
15-17	26	#	33*	79	94	100	46*	#	60	#
18-19	21	#	51*	76	97	97	36*	#	49*	#
Never Smokers, 10-19	**2,918**	**19**	**67**	**55**	**90**	**90**	**19**	**9**	**29**	**18**
10-14	1,613	20	65	46	85	84	17	9	26	17
15-19	1,305	18	68	67	97	97	21	10	34	20
10-12	1,063	20	67	42	83	82	19	7	23	16
13-14	550	19	62	53	89	89	14	12	32	19
15-17	814	19	68	63	96	96	20	10	32	20
18-19	491	17	68	72	97	97	24	11	37	19

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 6-3
Health Beliefs, by Planning to Smoke in the Next Month and Age, Never Smokers, Canada, 1994

			Negative Health Beliefs (% yes)						Perceived Benefits (% yes)		
Planning to Try Smoking in the Next Month	Age	Pop. Est. ('000)	Must Smoke for Many Years Before Hurt Health	Occa-sional Smoking Endangers Health	Quitting Smoking Reduces Damage Even After Years	Tobacco Is Addictive	ETS Is Harmful to Non-smokers	Smokers Can Quit Anytime	Smoking Helps People when They Are Bored	Smoking Helps People Relax	Smoking Helps People Stay Slim
YES – planning to try smoking	**Total, 10-19**	**42**	**27***	**40***	**66**	**94**	**90**	**25***	**20***	**36***	**25***
	10-14	23	33*	34*	62	90	83	#	21*	38*	30*
	15-19	20	#	48*	70	97	99	#	#	33*	#
NO – not planning to try smoking	**Total, 10-19**	**2,509**	**18**	**69**	**55**	**90**	**90**	**19**	**9**	**28**	**17**
	10-14	1,356	19	68	46	85	85	18	7	23	16
	15-19	1,153	18	70	66	96	96	21	10	34	20
DO NOT KNOW – if will try smoking	**Total, 10-19**	**210**	**22**	**50**	**51**	**89**	**84**	**13***	**13**	**36**	**24**
	10-14	189	23	51	48	88	82	13	14	36	22
	15-19	21	#	40*	80	99	94	#	#	37*	#

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 6-4
Health Beliefs, by Province and Age, Canada, 1994

		Negative Health Beliefs (% yes)					Perceived Benefits (% yes)		
	Pop. Est. ('000)	Must Smoke for Many Years Before Hurt Health	Occasional Smoking Endangers Health	Quitting Smoking Reduces Damage Even After Years	Tobacco Is Addictive	ETS Is Harmful to Non-smokers	Smokers Can Quit Anytime	Smoking Helps People when They Are Bored	Smoking Helps People Relax	Smoking Helps People Stay Slim
Canada,										
10-19	**3,881**	**20**	**63**	**58**	**91**	**90**	**20**	**15**	**38**	**20**
10-14	1,949	21	62	47	85	84	17	12	32	18
15-19	1,932	20	64	69	96	96	21	18	45	23
Newfoundland,										
10-19	**93**	**18**	**69**	**60**	**96**	**93**	**22**	**12**	**37**	**21**
10-14	45	19	64	49	93	88	18	13	34	17
15-19	48	17	73	71	98	98	25	11	40	23
Prince Edward Island,										
10-19	**20**	**16**	**66**	**59**	**95**	**93**	**18**	**12**	**43**	**19**
10-14	10	18	68	47	93	88	17	11	32	16
15-19	10	14*	65	71	98	97	19	12*	53	22
Nova Scotia,										
10-19	**126**	**15**	**68**	**61**	**94**	**93**	**16**	**11**	**39**	**19**
10-14	62	17	69	49	90	89	18	10	32	17
15-19	64	14	67	72	97	98	18	12	45	21
New Brunswick,										
10-19	**107**	**16**	**71**	**55**	**91**	**93**	**20**	**11**	**33**	**16**
10-14	52	17	69	45	84	89	16	9	23	14
15-19	55	15	73	66	98	96	24	12	43	17
Quebec,										
10-19	**966**	**20**	**53**	**53**	**85**	**89**	**18**	**14**	**28**	**21**
10-14	478	20	50	45	74	83	12	12	25	20
15-19	487	20	56	60	95	96	24	16	32	21
Ontario,										
10-19	**1,415**	**22**	**64**	**58**	**92**	**89**	**21**	**16**	**41**	**21**
10-14	712	22	66	46	87	83	19	12	33	18
15-19	704	22	62	71	97	96	22	20	49	24
Manitoba,										
10-19	**150**	**19**	**69**	**62**	**95**	**92**	**21**	**14**	**31**	**21**
10-14	75	20	69	51	91	87	18	10	27	16
15-19	75	19	70	74	98	97	23	17	35	26
Saskatchewan,										
10-19	**148**	**17**	**71**	**62**	**96**	**91**	**21**	**12**	**41**	**18**
10-14	77	19	70	49	93	86	19	11	36	17
15-19	71	15	73	75	99	97	24	13	47	19
Alberta,										
10-19	**387**	**20**	**70**	**59**	**94**	**92**	**22**	**15**	**44**	**19**
10-14	202	22	68	48	91	87	19	14	37	17
15-19	185	18	73	72	98	97	25	16	51	21
British Columbia,										
10-19	**470**	**21**	**67**	**64**	**93**	**92**	**21**	**17**	**47**	**22**
10-14	238	24	65	53	90	86	19	16	39	19
15-19	232	19	69	76	96	98	23	19	55	25

* Moderate sampling variability; interpret with caution

Table 6-5
Attitudes Toward Smoking, by Type of Smoker, Age, and Sex, Canada, 1994

		Smoking Is Cool (% yes)			It's Nicer to Date Non-smokers (% yes)		
	Pop. Est. ('000)	Total	Male	Female	Total	Male	Female
Total, 10-19	**3,881**	**5**	**6**	**4**	**70**	**70**	**69**
10-14	1,949	6	7	6	69	70	68
15-19	1,932	4	5	2*	70	70	70
10-12	1,166	5	6	5	73	73	72
13-14	783	8	9	7	64	66	62
15-17	1,149	4	5*	3*	71	72	70
18-19	783	4*	6*	#	69	68	71
Current Smokers, 10-19	**580**	**13**	**17**	**10**	**36**	**41**	**31**
10-14	128	25	27*	22*	29	38	20
15-19	452	10	14*	6*	37	41	34
10-12	29	31*	31*	#	38*	51*	#
13-14	99	23	26*	20*	27	34	20*
15-17	225	11*	16*	#	36	40	33
18-19	226	9*	12*	#	39	42	35
Beginning Smokers, 10-19	**256**	**13**	**16***	**11***	**60**	**64**	**57**
10-14	138	18	22*	15*	54	60	48
15-19	118	#	#	#	68	67	68
10-12	51	20*	24*	#	54	63	44*
13-14	87	17*	21*	#	53	58	50
15-17	75	#	#	#	66	69	64
18-19	44	#	#	#	71	65	76
Former Smokers, 10-19	**56**	**#**	**#**	**#**	**60**	**55***	**66**
10-14	9	#	#	#	55*	#	#
15-19	47	#	#	#	61	56*	66
10-12	#	#	#	-	#	#	#
13-14	6	#	#	#	#	#	#
15-17	26	-	-	-	52*	#	57*
18-19	21	#	#	#	73	70*	75*
Never Smokers, 10-19	**2,918**	**3**	**3**	**2***	**78**	**77**	**79**
10-14	1,613	4	4	3*	75	75	75
15-19	1,305	2*	2*	#	82	81	84
10-12	1,063	4	4*	3*	75	75	75
13-14	550	4*	5*	2*	74	74	74
15-17	814	2*	2*	#	82	81	83
18-19	491	#	#	#	83	81	86

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

- Data not available

Table 6-6
Perceived Reasons Youth Start Smoking, by Sex and Age,[a] Canada, 1994

		Reasons Youth Start Smoking (%)										
	Pop. Est. ('000)	Friends Smoke/ Peer Pressure	Parents Smoke	Siblings Smoke	Popular Kids Smoke	It's Relaxing	Curiosity/ To Try It	It's Not Allowed	Weight Control	Some-thing to Do	It's Cool	Other Reasons
Total, 10-19												
10-14	1,949	74	32	27	45	12	56	17	14	17	46	9
15-19	1,932	70	10	4	10	5	22	4	1	9	28	15
10-12	1,166	71	33	28	47	10	52	13	14	15	47	9
13-14	783	78	30	27	44	15	63	22	13	19	44	9
15-17	1,149	69	9	4	11	5	21	4	1*	8	28	15
18-19	783	72	11	4*	8	6	23	5	2*	11	30	17
Males, 10-19												
10-14	997	70	30	25	39	11	50	14	9	15	43	7
15-19	989	68	10	4*	9	4	21	4*	#	9	29	15
10-12	596	67	31	24	39	9	46	11	10	14	42	7
13-14	401	75	30	25	40	14	56	17	8	17	43	9
15-17	589	68	9	4*	9	4*	20	3*	#	7	29	14
18-19	400	68	13	4*	8*	4*	22	4*	#	11	30	16
Females, 10-19												
10-14	953	78	33	31	51	13	63	20	19	18	49	10
15-19	943	73	9	5	11	6	23	5	2*	9	28	16
10-12	571	76	35	31	55	11	58	16	19	15	51	11
13-14	382	81	30	30	47	16	70	27	18	22	46	9
15-17	560	71	10	5*	12	5*	22	4*	#	8	27	15
18-19	383	76	8*	4*	8*	8*	24	6*	3*	11	29	18

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 6-7
Perceived Reasons Youth Start Smoking, by Type of Smoker and Age,[a] Canada, 1994

		Reasons Youth Start Smoking (%)										
	Pop. Est. ('000)	Friends Smoke/ Peer Pressure	Parents Smoke	Siblings Smoke	Popular Kids Smoke	It's Relaxing	Curiosity/ To Try It	It's Not Allowed	Weight Control	Some-thing to Do	It's Cool	Other Reasons
Current Smokers, 10-19												
10-14	128	56	28	23	20	23	55	20	8*	18	25	11*
15-19	452	70	10	4*	7*	6*	26	4*	#	8*	21	15
10-12	29	48	29*	22*	24*	27*	43*	#	#	#	27*	#
13-14	99	58	28	23	19*	22	58	20	8*	20*	24	10*
15-17	225	69	10*	#	8*	6*	26	#	#	5*	19	12*
18-19	226	72	9*	#	7*	6*	27	4*	#	10*	22	18
Beginning Smokers, 10-19												
10-14	138	67	21	16	25	14*	61	23	12*	20	32	7*
15-19	118	65	#	#	#	#	23*	#	#	10*	22*	14*
10-12	51	60	30*	23*	24*	#	58	16*	12*	15*	34	#
13-14	87	71	16*	13*	26	16*	63	27	11*	23	31	#
15-17	75	61	#	#	#	#	24*	#	#	#	19*	16*
18-19	44	72	#	#	#	#	19*	#	#	#	26*	#
Former Smokers, 10-19												
10-14	9	73*	#	#	#	#	53*	#	#	#	42*	#
15-19	47	64	#	#	#	#	49	#	#	#	22*	#
10-12	#	#	#	#	#	#	#	#	#	#	#	#
13-14	6	75*	#	#	#	#	#	#	#	#	#	#
15-17	26	55*	#	#	#	#	56*	#	-	#	#	#
18-19	21	75	#	#	#	#	41*	#	#	#	#	#
Never Smokers, 10-19												
10-14	1,613	77	33	29	50	11	56	16	15	16	49	9
15-19	1,305	71	11	5	11	5	19	5	1*	9	32	16
10-12	1,063	73	33	28	49	9	52	13	15	15	8	8
13-14	550	84	33	31	52	14	64	21	14	19	51	10
15-17	814	70	10	5	12	4*	18	4*	#	8	31	15
18-19	491	73	12	4*	9	6*	21	6*	#	11	33	17

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

- Data not available

Table 6-8
Beliefs About Cigarette Pack Warning Labels, by Type of Smoker and Age, Youth Who Have Seen a Label, Canada, 1994

	Pop. Est. ('000)	Believe Labels (% yes)	Agreement with Labels (%)		
			Agree	Disagree	Neither
Total, 10-19	**3,235**	**97**	**85**	**4**	**11**
10-14	1,439	97	85	4	12
15-19	1,795	97	85	5	10
10-12	785	98	88	3	8
13-14	654	96	81	4*	16
15-17	1,052	97	85	4	11
18-19	743	97	85	5	9
Current Smokers, 10-19	**567**	**94**	**67**	**10**	**23**
10-14	118	88	52	13*	35
15-19	448	96	71	9	19
10-12	26	88	59	#	24*
13-14	93	88	51	12*	38
15-17	225	95	70	8*	23
18-19	223	96	73	11*	16
Beginning Smokers, 10-19	**243**	**98**	**80**	**4***	**16**
10-14	126	97	74	#	22
15-19	117	98	87	#	10*
10-12	44	97	76	#	20*
13-14	82	97	74	#	23*
15-17	74	99	83	#	13*
18-19	43	98	93	#	#
Former Smokers, 10-19	**54**	**96**	**83**	**#**	**12***
10-14	8	94	73*	#	#
15-19	46	96	85	#	#
10-12	#	#	#	#	#
13-14	5	96	#	#	#
15-17	26	99	87	#	#
18-19	21	92	81	#	#
Never Smokers, 10-19	**2,306**	**98**	**90**	**3**	**7**
10-14	1,132	98	90	2	8
15-19	1,175	98	90	3	7
10-12	696	98	91	2*	7
13-14	436	97	88	2*	10
15-17	720	98	90	3*	7
18-19	455	98	91	3*	7

Note: Youth who have ever seen a warning label constitute 84% of the total sample.

* Moderate sampling variability; interpet with caution

Data suppressed due to high sampling variability

Table 6-9
Beliefs About Tobacco Corporation Sponsorship Advertisements, by Type of Smoker and Age, Youth Who Have Seen an Ad, Canada, 1994

		These Billboards and Signs Are a Way of... (% agree)				
	Pop. Est. ('000)	Advertising Particular Sports and Cultural Events	Encouraging Sports and Culture in General	Encouraging People to Smoke	Advertising Particular Cigarette Brands	Promoting Goodwill Toward Tobacco Companies[a]
Total, 10-19	**1,942**	**56**	**47**	**55**	**83**	**75**
10-14	953	43	32	54	75	-
15-19	989	69	61	56	90	75
10-12	502	38	30	54	70	-
13-14	451	49	35	55	81	-
15-17	549	66	60	55	89	74
18-19	440	73	63	56	92	76
10	143	32	28	51	61	-
11	165	35	27	58	73	-
12	193	44	34	53	74	-
13	218	45	32	57	81	-
14	233	52	38	52	81	-
15	163	58	56	56	87	69
16	191	69	63	58	94	74
17	195	69	60	51	86	76
18	199	70	63	57	92	75
19	241	75	64	55	92	78
Current Smokers, 10-19	**343**	**67**	**60**	**42**	**85**	**74**
10-14	81	54	38	43	80	-
15-19	263	71	67	42	87	74
10-12	16	46*	40*	37*	76	-
13-14	64	57	38	45	81	-
15-17	118	71	68	39	83	74
18-19	145	70	66	45	91	73
Beginning Smokers, 10-19	**144**	**60**	**45**	**49**	**85**	**74**
10-14	81	52	37	48	81	-
15-19	64	70	54	51	90	74
10-12	28	53	37*	53	80	-
13-14	53	52	38	45	81	-
15-17	38	64	56	50	90	70
18-19	26	79	52	51	90	80

Table 6-9 (Cont'd)
Beliefs About Tobacco Corporation Sponsorship Advertisements, by Type of Smoker and Age, Youth Who Have Seen an Ad, Canada, 1994

		These Billboards and Signs Are a Way of... (% agree)				
	Pop. Est. ('000)	Advertising Particular Sports and Cultural Events	Encouraging Sports and Culture in General	Encouraging People to Smoke	Advertising Particular Cigarette Brands	Promoting Goodwill Toward Tobacco Companies[a]
Former Smokers, 10-19	**35**	**77**	**66**	**40***	**90**	**65**
10-14	6	#	#	#	84	-
15-19	29	79	74	38*	92	65
10-12	#	#	#	#	#	-
13-14	4	#	#	#	#	-
15-17	17	#	#	#	95	61
18-19	12	79*	78*	52*	88	71*
Never Smokers, 10-19	**1,374**	**53**	**44**	**59**	**82**	**76**
10-14	746	41	31	57	74	-
15-19	627	68	59	62	92	76
10-12	444	37	29	55	69	-
13-14	302	46	34	60	81	-
15-17	371	64	57	62	91	74
18-19	256	74	63	63	94	78

Note: Youth who have ever seen a tobacco company sponsorship advertisement constitute 50% of the tal sample.

a. Item given only to household component of the survey.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

- Data not available

Chapter 7

Knowledge of Health Risks

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Highlights

Methods

Results
Education About Smoking-related Health Problems
Awareness of Smoking-related Health Problems
Health Problems Recalled
Number of Smoking-related Health Problems Recalled
Awareness of Cigarette Pack Warning Messages
Relationship Between Health Knowledge and Warning Labels
Awareness of Own Cigarette Brand Ingredients

Discussion
Education About Smoking-related Health Problems
Awareness of Smoking-related Health Problems
Awareness of Cigarette Pack Warning Messages
Relationship Between Health Knowledge and Warning Labels
Awareness of Own Cigarette Brand Ingredients
Implications for Regulation and Legislation
Implications for Education and Message Promotion
Implications for Future Monitoring and Further Research

References

Highlights

- Three quarters (76%) of Canadian youth report being taught about the health effects of smoking in school. Considerable provincial variation is found, with youth in Quebec (64%) least likely to report receiving school-based education.

- Lung cancer and heart disease are among the most common smoking-related health problems recalled by youth; stroke, bronchitis, and asthma are reported by only a small percentage of youth. Recall of most smoking-related health problems increases with age.

- Current smokers between the ages of 15 and 19 are more likely than never smokers to be aware that heart disease and cancer are health problems caused by smoking. The number of smoking-related health problems mentioned increases with smoking experience. For those aged 10-14, smoking status is not related to recall of any specific health problem or to the number of problems likely to be mentioned.

- Among all Canadian youth, the three most frequently recalled pack warning labels are "Smoking during pregnancy can harm your baby," "Smoking is the major cause of lung cancer," and "Cigarettes can kill you." "Smoking causes strokes" and "Smoking can harm your children" are the least-cited warning messages. Recall of pack warnings increases with age and smoking experience.

- Sex differences in knowledge of health risks and recall of warning labels are minimal, except that girls are more likely to recall the warning concerning harm to pregnancy.

- There appears to be a positive relationship between the recall of pack warning labels and the recall of health problems for lung cancer, heart problems, strokes, and cancer, as those who have seen these warning labels are more likely to recall the corresponding health problem, relative to those who have not seen such labels.

- Current smokers aged 15-19 do not seem to know the levels of toxins in their cigarettes, as just about half (47%) could not identify at least one ingredient level. Only about one third of current smokers (ages 15-19) want more prominent toxic ingredient information on their cigarette packs.

- These findings suggest that Canadian youth are reasonably well informed about the health risks of smoking, although there is room for improvement. In particular, health risks with a relatively immediate impact (e.g., harm to children and harm during pregnancy) could be reinforced further. Warning messages on cigarette packages and other displays appear to have an impact and should be retained in their current, prominent form. Information about toxic ingredients is less well retained and may require further interpretation to be well understood.

Methods

This chapter examines knowledge of health problems related to smoking, as well as awareness of cigarette pack warnings and cigarette toxic ingredient levels. In addition, it probes the relationship between knowledge of warning labels and knowledge of smoking-related health risks.

All youth were asked whether or not they had ever been taught in school about health problems due to smoking (SS61, HH71, that is, School Survey Question 61 and Household Survey Question 71; see Appendix A). Responses were yes, no, or don't know. The frequency of response for the "don't know" option exceeded 10% in the school component and was, therefore, treated as a valid category. This fact should be taken into account when comparing the two survey components.

Both survey components included an open-ended question to assess knowledge of the types of health problems one can get from smoking for many years (SS46, HH51). The responses were then classified into 10 individual health problems, including an "other problems" category for rare and uncodeable answers. In addition, a new variable was created that counted the number of health problems stated and subsequently categorized them as 0, 1, 2, or 3 or more problems.

Several methodological differences exist between survey components with respect to the coding of individual health problems. A summary of the coding scheme used is shown in Table 7-A. Note that some of the categories are specific health problems related to smoking, while others represent aggregate categories where different, although conceptually related, health problems have been grouped together. This was due to the fact that certain health problems were not mentioned frequently enough to be examined individually. Consequently, the recall rates for specific

Table 7-A
Categories and Coding Scheme for Recalled Health Problems

Health Problem Category	Coding Includes:
1) Lung cancer	
2) Heart disease	Heart problems
3) Heart attack	Heart failure
4) Stroke	
5) Bronchitis	Swelling of the breathing/ bronchial tubes
6) Emphysema	Swelling of lung tissue
7) Asthma	
8) Other respiratory diseases	Pneumonia, influenza, tuberculosis, breathing problems, harms/destroys lungs, chest infection, blackens tissue
9) Other cancer[a]	Cancer of the throat, mouth, lip, tongue, larynx, esophagus, breast, etc., and cancer in general
10) Other problems	Addiction, miscarriages, low birth weight, etc.

a. 15- to 19-year-olds were asked to be specific if they mentioned "cancer" as a problem; 10- to 14-year-olds were not prompted.

Table 7-B
Categories and Coding Scheme for the Recalled Cigarette Pack Health Warning Messages

Health Warning Message Category	Coding Includes:
1) Smoking during pregnancy can harm your baby	Harm unborn child/fetus, can cause miscarriage
2) Smoking reduces life expectancy[a]	Shortens life/shorter life span
3) Smoking is the major cause of lung cancer[a]	
4) Cigarettes cause fatal lung disease	Tar in lungs
5) Smoking is the major cause of heart disease[b]	Increases risk of heart disease/ heart attack
6) ...cause of stroke[b]	
7) Cigarettes cause cancer	Cancers other than lung cancer
8) Cigarettes are addictive	Hooked on nicotine
9) Cigarettes can kill you	Causes death
10) Can cause disease in non-smokers	Harm/affect non-smokers
11) Can harm your children	

a. In rotation from October 1989 to December 1994. However, the "causes lung cancer" message still remains on cigarette carton warning labels.
b. Heart disease and stroke appear together on cigarette pack labels, as of September 1994.

categories in Table 7-A are likely to be influenced by whether or not health problems have been aggregated. In addition, although recall was *unaided* in both surveys, those in the household component of the survey (ages 15-19) were *prompted* to be more specific if cancer was mentioned as a smoking-related health problem; this was not the case for those in the school component (ages 10-14). The above methodological differences should be kept in mind when interpreting the health knowledge recall rates for younger (ages 10-14) and older (ages 15-19) age groups.

All youth were asked whether or not they had ever seen cigarette pack warning labels (SS48a, HH53). Those who indicated that they had seen warning labels (84% of the total sample) were then asked to recall any of the warning messages they might have read (SS48b, HH54). These responses were classified according to the 11 official health warning messages in rotation across Canada prior to or at the time of the survey (see Table 7-B for classification and coding scheme). A count of the number of warning messages recalled was also calculated.

Current smokers in the household component of the survey (ages 15-19) who reported smoking a usual cigarette brand (10% of total sample) were asked to identify, without looking at their packs, the levels of tar, nicotine, and carbon monoxide in their cigarettes (HH16-HH18). Response options for each toxic ingredient were less than 6 mg, 6-10 mg, 11-15 mg, or more than 15 mg. Responses were coded as either correct or incorrect based on actual levels in the usual brand smoked, as reported earlier in the interview (HH14). A summary score was also calculated based on the number of correct responses across the three ingredients. Finally, these current smokers were asked if they wanted cigarette ingredients displayed more prominently on cigarette packs (HH19).

Because the main sections in this chapter (i.e., awareness of health problems and warning labels) are based on unprompted recall questions, the reader should bear in mind that the response frequencies are likely to be lower than if they had been closed (recognition) questions. Also important is the observed influence of a method effect in these sections, as those in the school component of the survey were required to write down their responses, whereas those in the household component responded over the telephone. Written responses are prone to both encoding (e.g., spelling) and decoding (e.g., legibility) error and, indeed, require more effort by the respondent than oral

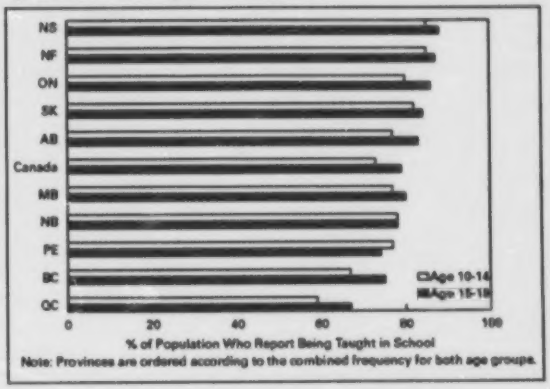
responses, which are typically limited to decoding error (e.g., comprehension). For this reason, as well as the previously mentioned survey differences, these sections discuss the results for the 10-14 and 15-19 age groups separately and provide no overall estimates for the 10-19 age group.

To assess the relationship between knowledge and labels, the present chapter includes a section in which a one-to-one analysis was carried out for each health problem category with a corresponding pack warning message. Because of low recall frequencies for the problems and/or labels concerning harm during pregnancy, reduced life expectancy, and addiction, analyses could be carried out only for the following categories: lung cancer, heart disease, strokes, and cancer (other than lung cancer). Note that for this section, the health problems heart disease and heart attack were collapsed in order to be comparable with the classification of the heart disease warning. In both survey components, the question addressing knowledge of smoking-related health problems was administered just prior to the health warning recall item.

The majority of the responses are presented in the chapter according to age, sex, smoking status, and, in some cases, province. In this chapter, beginning smokers are treated as a separate category, thereby limiting the "Have not smoked 100 cigarettes" category to lifetime abstainers and past experimenters who did not smoke in the 30 days preceding the survey (hereafter referred to as never smokers). This chapter also includes other independent variables, such as whether never smokers were planning to try smoking in the following month (SS10, HH36); whether or not smokers usually buy cigarette packs (SS26, HH23); whether or not those who currently smoke have attempted to quit (SS31, HH30); and whether or not current smokers in the household component of the survey usually smoke "light" cigarettes (HH21b).

The reader should bear in mind that small subgroup sample sizes (e.g., former smoker sample size is 299) affect the reliability of the estimates and also prevent detailed comparisons. Due to this reduction in sample size as data become partitioned into smaller subgroups, most of the tables and figures presented here are restricted to two-way analyses (e.g., type of smoker by age). However, where a third variable (e.g., sex) proves significant, it is highlighted in the text. Any statements about significant subgroup differences are based on the 0.05 level of significance (see Chapter 2).

Figure 7-A
Received Education About Smoking and Health, by Province and Age, Canada, 1994



Unless otherwise specified, missing values, including "don't know" and unstated responses, that account for less than 10% of the responses for either component were either averaged into other categories or excluded entirely due to small proportions. As noted above, "don't know" appears in Tables 7-1 and 7-2, since 12% of the school component falls into this category.

Results

Education About Smoking-related Health Problems

Overall, three quarters (76%) of Canadian youth report receiving education about the health effects of smoking (see Table 7-1 at end of chapter). Those under age 12 are least likely to indicate receiving education about smoking. Responses do not vary by sex.

Table 7-2 reports the responses to this item by province of residence, while Figure 7-A focuses solely on the distribution of the "yes" responses by province. Provincial variations are substantial, ranging from 59% and 67% for younger and older youth living in Quebec to 85% and 88% of youth in Nova Scotia (Fig. 7-A).

Awareness of Smoking-related Health Problems

Health Problems Recalled

When asked what health problems people can get if they smoke for many years, lung cancer was, by far, the most common health problem mentioned by both younger and older youth (Fig. 7-B). Recall of lung cancer as a problem clearly increases with age, from 49% of those aged 10-12 to 66% of those aged 13-14,

Figure 7-B
Recall of Smoking-related Health Problems, by Age, Canada, 1994

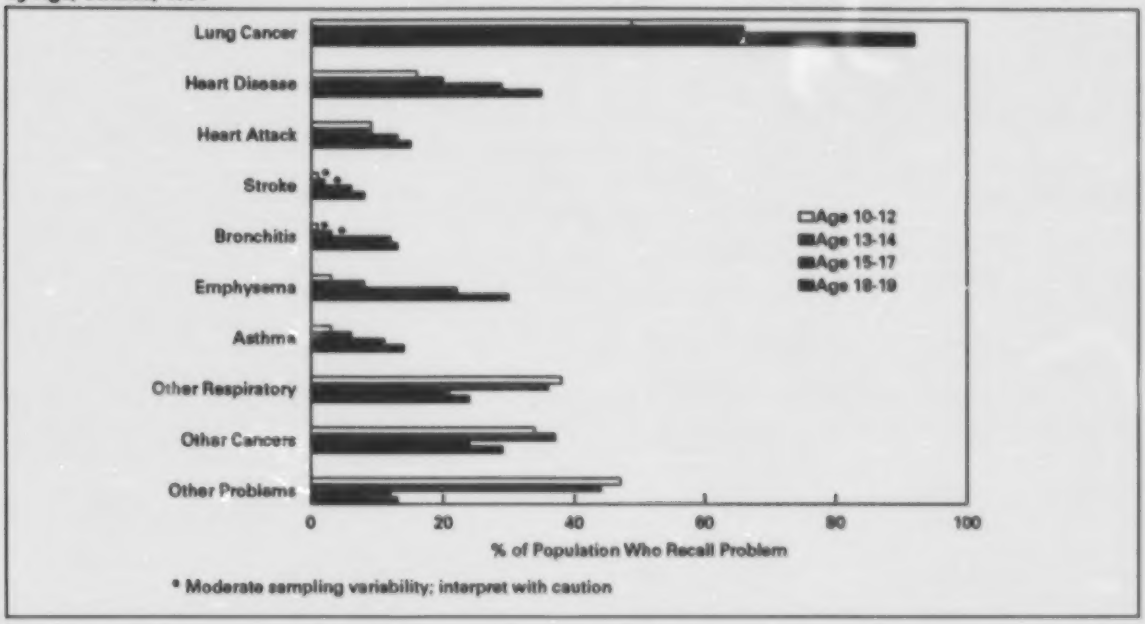


Figure 7-C
Recall of Smoking-related Health Problems, by Type of Smoker, Age 15-19, Canada, 1994

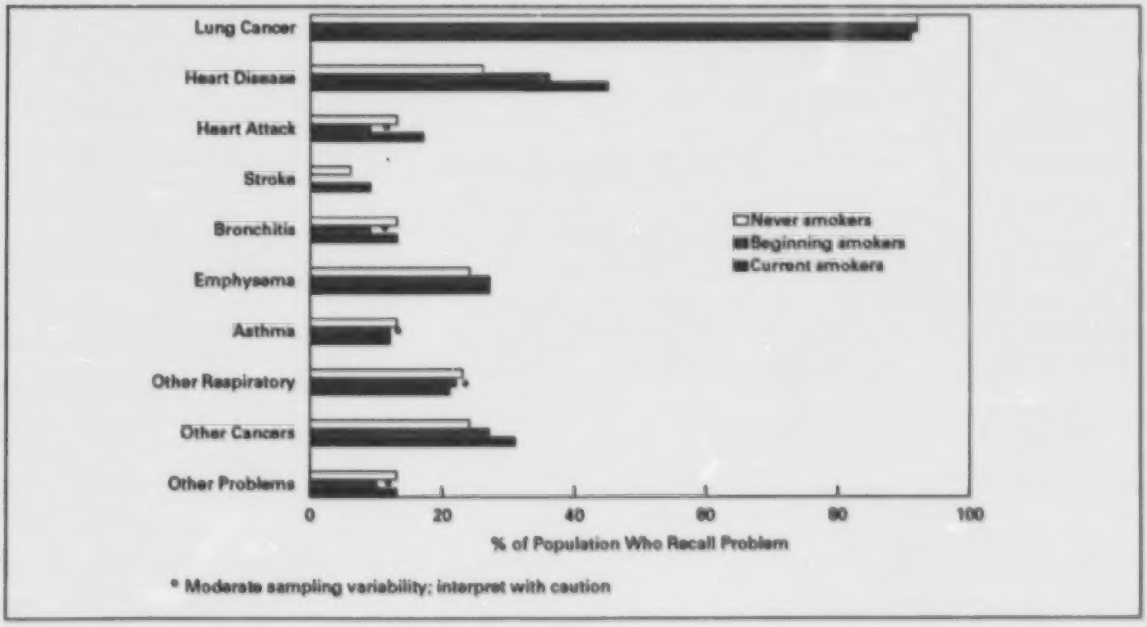
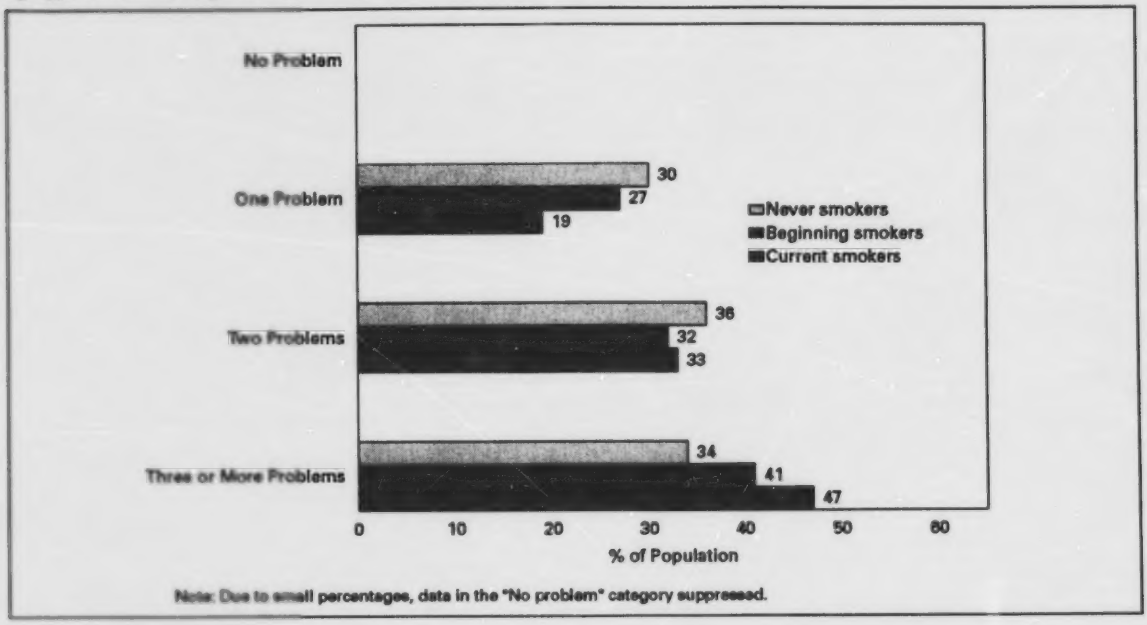


Figure 7-D
Number of Smoking-related Health Problems Recalled, by Type of Smoker, Age 15-19, Canada, 1994



Note: Due to small percentages, data in the "No problem" category suppressed.

to 92% for both 15- to 17- and 18- to 19-year-old age groups. For youth aged 15-19, heart disease was the second most common smoking-related health problem mentioned. Recall of heart disease as a problem was much lower among youth aged 10-14.

Youth aged 10-14 are less likely to identify health problems by name, whereas older youth (15-19) are more likely to name the *specific* health problems, such as bronchitis, emphysema, and asthma, as well as heart disease, heart attack, and stroke. This may explain why the recall rates seen in Figure 7-B for all three aggregate health problem categories (i.e., "other" categories) are higher for younger youth (10-14) than for older youth (15-19). Within all age groups, there is little variation between the sexes with regard to the recall of health problems (Table 7-3).

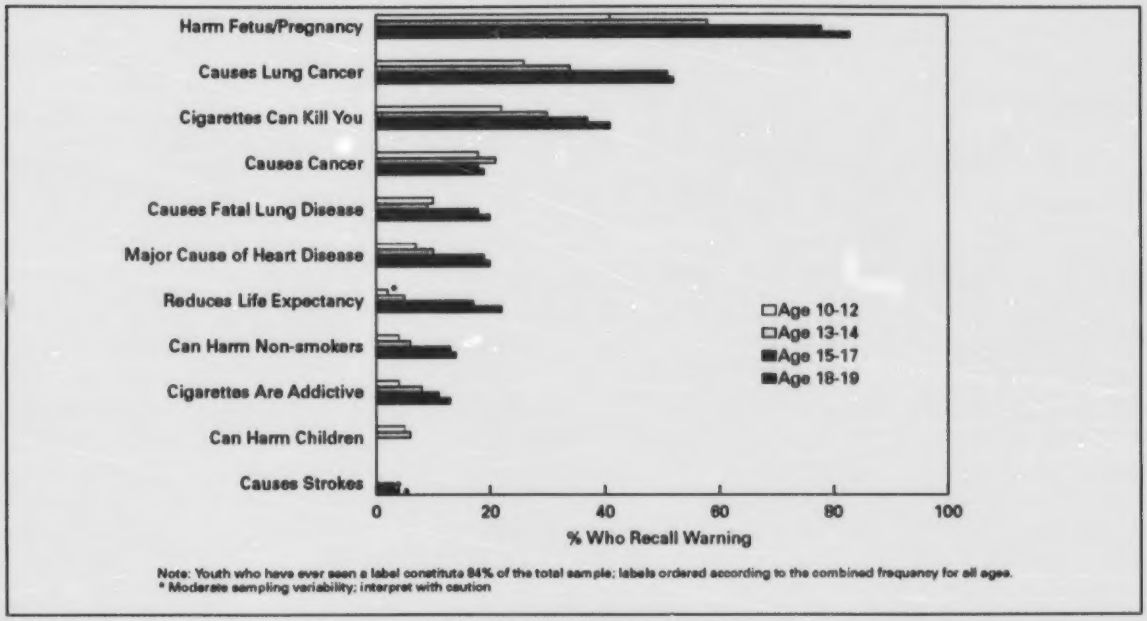
Current smokers, beginners, and never smokers aged 10-14 are fairly uniform in their recall of specific or aggregate health problem categories (Table 7-4). As well, there are few differences between current smokers and never smokers aged 15-19, with some important exceptions. Specifically, heart disease is more likely to be recalled by current smokers (45%) than by those who have never smoked (26%) (Fig. 7-C). In addition, almost one third (31%) of current smokers aged 15-19 are likely to recall at least one type of cancer (other than lung cancer), compared to 24% of those who have never smoked. For these two health problems, the recall rates for beginners and the small group of former smokers fall between those of current smokers and never smokers (see Table 7-4).

Number of Smoking-related Health Problems Recalled

Overall, 17% of 10- to 14-year-olds and 37% of 15- to 19-year-olds mentioned three or more (3+) smoking-related health problems (Table 7-5). For those aged 10-14, smoking status is not associated with the number of health problems mentioned. Among 15- to 19-year-olds, however, nearly one half of current smokers (47%) mentioned three or more smoking-related health problems, compared to only 34% of those who have never smoked (Fig. 7-D). This difference is seen for both males and females aged 15-19 (data not shown). The proportions of beginners and former smokers who recall three or more health problems fall between those of current and never smokers but do not differ statistically from those of either group.

Exploratory analyses reveal few differences in the number of health problems recalled by youth in the different provinces or among those planning to smoke,

Figure 7-E
Cigarette Pack Warning Labels Recalled, by Age, Youth Who Have Seen Labels, Canada, 1994



Note: Youth who have ever seen a label constitute 84% of the total sample; labels ordered according to the combined frequency for all ages.
* Moderate sampling variability; interpret with caution

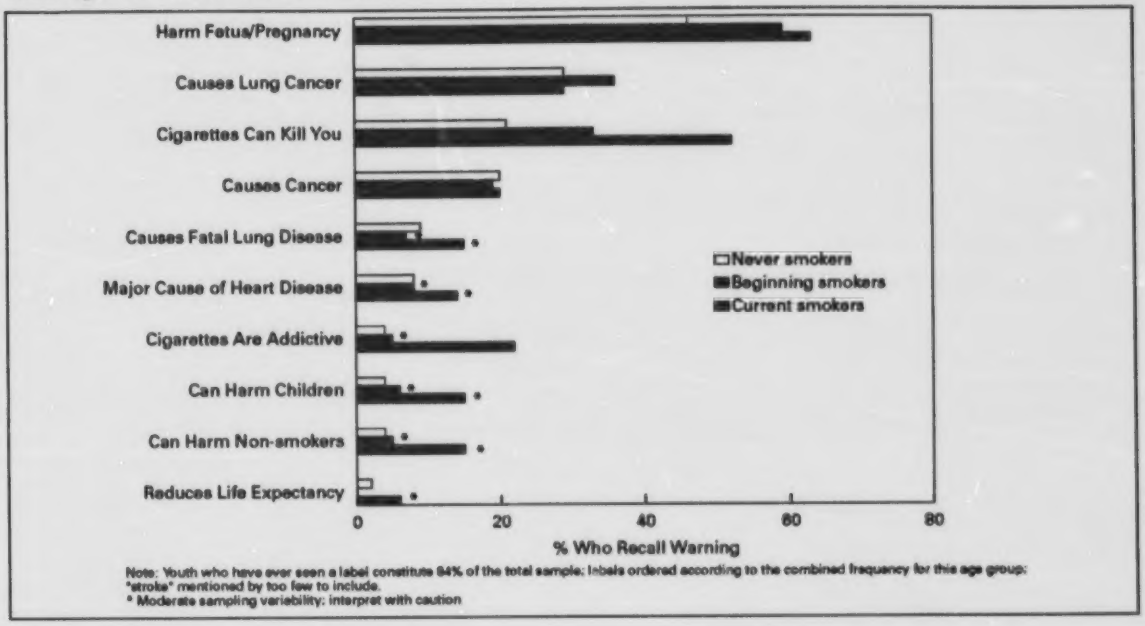
those not planning to smoke, and those who are uncertain. However, younger youth (10-14) who report being taught about smoking-related health problems in school tend to recall more health problems than those who report they had not been taught (Table 7-6). Twenty percent of 10- to 14-year-olds taught about smoking-related health problems are able to recall three or more problems, whereas only 9% of those who said they had not been taught are able to recall this many. This pattern is similar for both 10- to 14-year-olds who currently smoke and those who have never smoked (data not shown). For 15- to 19-year-olds, there is no statistically significant difference in the number of smoking-related health problems recalled by those who said they had or had not been taught about these health issues in school.

Awareness of Cigarette Pack Warning Messages

This section examines exposure to the federally mandated health warning labels on Canadian cigarette packages and knowledge of the health messages conveyed. Affirmative responses to the question "Have you ever seen health warning messages on cigarette packages?" are presented in Table 7-7 by age, sex, and type of smoker. Overall, the likelihood of having seen the health warning labels on packs increases linearly with age, from just over half (57%) of 10-year-olds to almost all youth aged 17 and older, with males and females equally likely to have seen the labels. Analysis by smoking status subgroups, however, reveals that this age effect holds only for never smokers. As would be expected, almost all current, beginning, and former smokers are highly likely to be exposed to pack warning labels, with only slight differences due to age.

Youth who indicated that they had seen pack warning labels (84% of total sample) were asked to recall all the messages they remember reading. The recall frequencies for the 11 health warning messages are presented in Figure 7-E according to age group, in descending order of recall. Youth in all age groups are by far most likely to recall the message "Smoking during pregnancy can harm your baby," relative to the other warning messages in circulation at the time of the survey. The second most frequently cited health warning label for all age groups is "Smoking is the major cause of lung cancer," followed closely by "Cigarettes can kill you." The warnings cautioning about smoking as a cause of strokes and posing harm to children are the least frequently cited messages by all young people (Fig. 7-E).

Figure 7-F
Cigarette Pack Warning Labels Recalled, by Type of Smoker, Youth Aged 10-14 Who Have Seen Labels, Canada, 1994



Note: Youth who have ever seen a label constitute 84% of the total sample; labels ordered according to the combined frequency for this age group; "stroke" mentioned by too few to include.
* Moderate sampling variability; interpret with caution

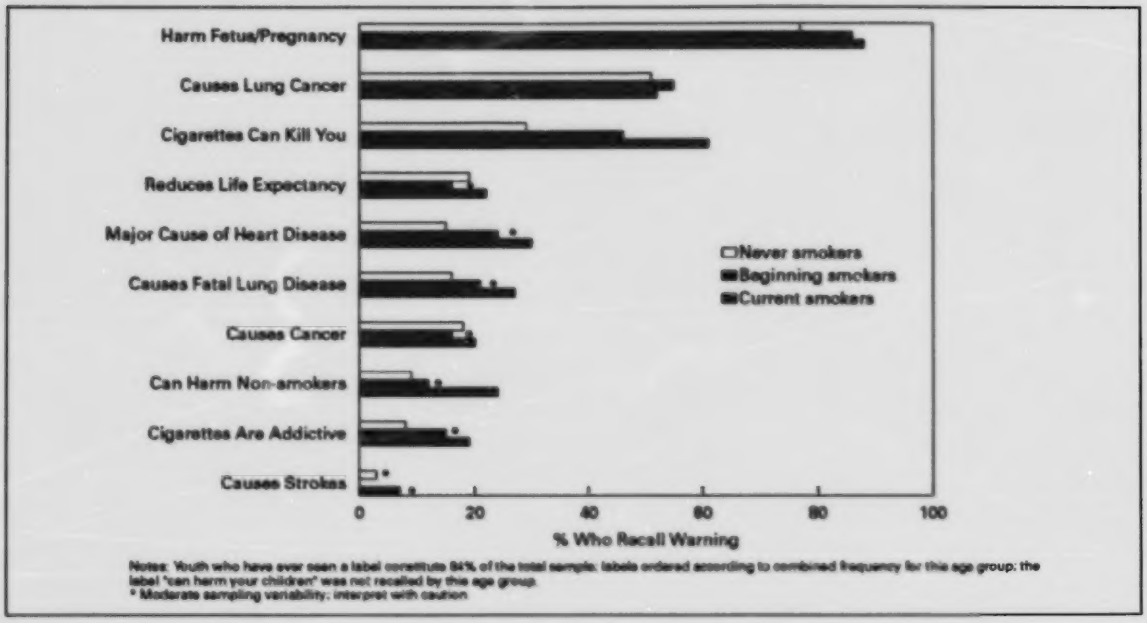
Among the 10- to 14-year-olds, the likelihood of recall increases significantly as a function of age (10-12 vs. 13-14) for the following labels: "Smoking during pregnancy can harm your baby"; "Smoking is the major cause of lung cancer"; "Cigarettes can kill you"; "Cigarettes are addictive"; and "Smoking reduces life expectancy" (Fig. 7-E). Among the 15- to 19-year-olds, significant differences can be found between the 15- to 17-year-old age group and the 18- to 19-year-old group in the frequency of citing only the labels concerning harm to pregnancy and reduction in life expectancy.

The recall rates of certain warnings are substantially different for the younger and older groups. Compared to 10-to 14-year-olds, who were required to write their responses, 15- to 19-year-olds are much more likely to cite all the labels except "Smoking causes cancer." Notably, those under 15 years of age are more likely to recall the message that "Smoking can harm your children" compared to older youth. Caution is warranted when interpreting the above age effects, as the confounding method effect is likely to have played a role (see Methods section).

Table 7-8 displays the recall frequencies by sex and age subgroups. One noteworthy sex difference occurs. Both younger (10-14) and older (15-19) females are more likely to recall the warning that smoking while pregnant can harm the baby than are their male counterparts.

Current smokers aged 10-14 are more likely than youth in the other smoking status categories to recall five of the 11 messages: "Cigarettes can kill you"; "Cigarettes are addictive"; "Can harm non-smokers"; "Reduces life expectancy"; and "Can harm your children" (Fig. 7-F). The magnitude of difference is especially large for the first two labels, as young current smokers seem very aware of these warnings. Current and beginning smokers are equally likely to be aware of the labels "Smoking during pregnancy can harm your baby" and "Smoking is the major cause of heart disease," and they seem more aware of these two labels than never smokers. No significant differences in recall rates can be found across the smoking status categories for the messages regarding lung cancer, lung disease, and cancer in general. The stroke warning label is unlikely to be mentioned by this age group, regardless of smoking status (Fig. 7-F).

Figure 7-G
Cigarette Pack Warning Labels Recalled, by Type of Smoker, Youth Aged 15-19 Who Have Seen Labels, Canada, 1994



Notes: Youth who have ever seen a label constitute 94% of the total sample; labels ordered according to combined frequency for this age group; the label "can harm your children" was not recalled by this age group.
* Moderate sampling variability; interpret with caution.

Among the 15- to 19-year-olds, current smokers are more likely than never smokers to be aware of all the labels except those concerning lung cancer, reduced life expectancy, and cancer in general (Fig. 7-G). Beginning smokers are also more aware of the label "Cigarettes can kill you" than their peers who have never smoked (46% vs. 29%, respectively). As was found among the 10- to 14-year-olds, little variation in recall exists within this older age group among any of the smoking status categories regarding the labels warning of smoking as a cause of lung cancer, cancer, and reducing life expectancy. The label concerning harm to children is unlikely to be recalled by this age group, regardless of smoking status (Fig. 7-G).

Although the label warning about smoking while pregnant still remains the one recalled by most, the message "Cigarettes can kill you" is ranked second among current smokers of all ages (overall, it was ranked third behind lung cancer), followed by "Smoking is the major cause of lung cancer." Smokers are also more aware (compared to the aggregate) of the label "Smoking is the major cause of heart disease." Current smokers of all ages are unlikely to recall the labels concerning harm to children and cause of strokes. It should be noted that current smokers aged 12 and younger are likely to be aware of only four of the 11 circulating messages (i.e., harm to pregnancy, cigarettes as a cause of death, cause of lung cancer, and cancer in general; see Table 7-9 for detailed smoking status-age subgroup frequencies).

In the aggregate, the number of health warnings mentioned by youth increases linearly with age. For instance, the proportion recalling three or more warnings increases from 8% (moderate sampling variability) to 56% between the ages of 10 and 19 (Table 7-10). As one would expect, current smokers tend to be more inclined to recall at least three warning labels, compared to never smokers. This pattern holds true for all age groups. Beginning and former smokers fall in between the current and never smokers in their ability to recall three or more warnings (Table 7-11).

Relationship Between Health Knowledge and Warning Labels

Overall, those who recall disease-specific health warnings, such as lung cancer, heart disease, stroke, and cancer in general, are also more likely to recall these health problems when queried, compared to those youth who do not recall the warnings. For example, among the 10- to 14-year-olds who recalled the warning label "Smoking is the major cause of lung cancer," 82% also recalled lung cancer as a health

problem associated with years of smoking. Of those aged 10-14 who *did not* recall this health warning message, only 50% recalled lung cancer as a health problem (Table 7-C). Nearly all the 15- to 19-year-olds (over 90%) recalled lung cancer as a smoking-related health problem, which allowed for only minor variability between those who did and did not recall lung cancer as a health warning label (Table 7-C).

The association between warning label recall and the recall of specific health problems is particularly strong for heart disease and stroke. For both age groups, heart-related health problems due to smoking are 2-3 times more likely to be mentioned by those who are familiar with the warning "Smoking is a major cause of heart disease" than by those who do not recall this warning label (Table 7-D). Among the 15- to 19-year-olds, those who recall stroke as a warning message are 11 times more likely to recall stroke as a health problem, compared to those who do not recall the stroke warning message (Table 7-E). Low recall frequencies for both the stroke warning label and health effect among those aged 10-14 precluded the same comparison for this group.

Young people who recall cancer (other than lung) as a component of health warning messages are more likely to mention this type of smoking-related problem, compared to those who do not recall this health warning label (Table 7-F). The problem cancer is twice as likely to be stated by 10- to 14-year-olds who are aware of the cancer warning label than by those not aware of the label. Among 15- to 19-year-olds, cancer as a health problem is 1.5 times more likely to be recalled by those who are aware of the corresponding warning label (Table 7-F).

Awareness of Own Cigarette Brand Ingredients

The Youth Smoking Survey (YSS) elicited information about current smokers' cognizance of the levels of toxic constituents contained in their usual cigarette brand, which, at the time of the survey, were federally mandated to be displayed on the side of cigarette packs. Table 7-11 presents the proportions correctly identifying the levels of tar, nicotine, and carbon monoxide in their usual cigarette brand (questions not given to youth in the school component of the survey). Among current smokers aged 15-19, 39% correctly identified the level of tar in their cigarettes. Forty-two percent correctly identified the level of nicotine, while

Table 7-C
Lung Cancer: Recall of Health Problem, by Recall of Health Warning Label and Age, Canada, 1994

	% Who Recalled Lung Cancer as a Health Problem	
	10- to 14-year-olds	15- to 19-year-olds
Recalled lung cancer health warning	82	94
Did not recall lung cancer health warning	50	90

Table 7-D
Heart Problems: Recall of Health Problems, by Recall of Health Warning Label[a] and Age, Canada, 1994

	% Who Recalled Heart Disease/Heart Attack	
	10- to 14-year-olds	15- to 19-year-olds
Recalled heart disease warning	70	70
Did not recall heart disease warning	22	32

a. The "heart disease" warning label coding also included mention of "heart attack"; thus, these problems were combined.

Table 7-E
Stroke: Recall of Health Problem, by Recall of Health Warning Label and Age, Canada, 1994

	% Who Recalled Stroke as a Health Problem	
	10- to 14-year-olds	15- to 19-year-olds
Recalled stroke health warning	#	56
Did not recall stroke health warning	1*	5

* Moderate sampling variability; interpret with caution
\# Data suppressed due to high sampling variability

Table 7-F
Cancer: Recall of Health Problem, by Recall of Health Warning Label and Age, Canada, 1994

	% Who Recalled Cancer as a Health Problem	
	10- to 14-year-olds	15- to 19-year-olds
Recalled cancer health warning	63	36
Did not recall cancer health warning	31	24

26% correctly identified the level of carbon monoxide in their usual brand. Knowledge of ingredients did not vary as a function of age or sex, although there is some indication (not statistically significant) that males are more aware of levels of tar and nicotine than females.

Just over one third (37%) of young people who smoke would like the toxic constituent information to appear more pronounced on their cigarette packs (Table 7-11). No significant differences due to age or sex can be found.

An overall summary score of the number of correct answers across the three ingredients was calculated to obtain a general indication of knowledge of ingredients. Overall, just under half (47%) of current smokers aged 15-19 do not know the content level of at least one toxic constituent in their cigarettes (Table 7-12). Just over one third (38%) can correctly identify one ingredient level, and only 15% of smokers are aware of two or more quantities. Awareness of ingredients does not vary significantly by age or sex.

Current smokers who have attempted to quit smoking at least once were compared to those who have never tried to quit in order to see if awareness of ingredient levels differs between these groups. No differences are found regarding the overall knowledge of ingredients (data not shown). Similarly, smokers of "light" cigarettes were compared with those who do not smoke "lights," and no differences in overall knowledge of toxic constituent levels were found (data not shown).

Discussion

Education About Smoking-related Health Problems

In Canada, education about the health effects of smoking is under provincial jurisdiction. In some provinces (e.g., Ontario), school boards are given the mandate to develop and implement tobacco prevention programs under the general guidelines of the province, while in others (e.g., New Brunswick), the same curriculum is employed province-wide. [6] Thus, tobacco education can vary across, as well as within, provinces. Furthermore, in some provinces/territories, smoking prevention lessons are imbedded within a larger "health and physical education" curriculum and, hence, may be allotted a small proportion of time. Thus, great variation exists as to whether, and at what age, youth are taught about the health effects of smoking.

Given this, it is no surprise that most, but not all, Canadian youth report receiving tobacco education in school. Children and preteens show even more variability with respect to being taught about smoking and health, possibly because this type of education typically does not become emphasized until sometime between grades 6 and 9. That youth in Quebec fall below the national average (Table 7-2) is consistent with that province's relatively weak curriculum guidelines for smoking education. For example, only 29% of elementary school teachers in Quebec reported that smoking prevention is taught in their schools. [6] Conversely, all elementary school teachers surveyed in Nova Scotia indicated that smoking prevention is taught in their schools. [6] This is consistent with the YSS finding that nearly all youth in Nova Scotia indicate receiving tobacco education.

The relationship between tobacco education and smoking prevalence is ambiguous. For instance, only about two thirds of youth in Quebec report being educated about smoking and health, the lowest rate in the nation. This is consistent with the fact that Quebec has the second-highest youth smoking rate in Canada (see Fig. 3-F). On the other hand, although youth in Newfoundland are highly likely to report receiving education, at the same time they have the highest smoking prevalence rate in the country (see Fig. 3-F). Of course, other factors, such as taxes, ease of access to cigarettes, and variations in uptake and cessation related to diffusion, play a role in provincial differences in smoking prevalence (see Chapters 3 and 10), although relationships are still difficult to predict.

Awareness of Smoking-related Health Problems

Young Canadians appear to gain knowledge through their teenage years about the long-term health effects of smoking. By the time they reach their mid- to late teens (i.e., 15-19), over one third of Canadian youth (37%) are able to name, *without prompting*, three or more smoking-related health problems. Older youth that smoke are particularly aware of specific health problems, with close to one half able to recall three or more problems related to smoking. Lung cancer, heart disease, and various respiratory problems (e.g., bronchitis, emphysema, asthma) are the most common health problems mentioned, whereas stroke is a long-term health effect that is recalled by very few.

That these recall rates for specific smoking-related health problems among YSS youth (ages 15-19) are relatively high becomes particularly evident when compared to results observed in Health Canada's recent Survey on Smoking in Canada (SOSIC). [10] Table 7-G summarizes the results for 15- to 19-year-olds from the YSS and SOSIC for four specific health problems. For comparison purposes, the recall rates for the adult population in 1994 (ages 20-64) have also been included in Table 7-G.

In both surveys, current smokers are more likely to link heart problems to smoking than are never smokers. However, current smokers and never smokers in the YSS are more likely to mention heart problems as a result of smoking than are their counterparts in SOSIC (Table 7-G). As well, regardless of smoking status, youth (ages 15-19) in the YSS were much more likely to mention lung cancer as a smoking-related health problem than youth interviewed in SOSIC. There are a number of methodological differences between these two surveys (e.g., SOSIC respondents were restricted to mentioning a maximum of four health problems),[a] which suggest that the higher recall rates in the YSS may represent more reliable estimates of the awareness of smoking-related health effects among today's older teens.

There are, however, other results within SOSIC that provide a more complete picture of the knowledge level of youth today. For example, despite the lower recall rates for "lung cancer" in SOSIC compared to the YSS, further questioning revealed that 91% of SOSIC youth (age 15-19) said it was "very likely" that years of smoking will cause lung cancer. Despite low recall rates for bronchitis/asthma in both the YSS and SOSIC (Table 7-G), nearly two thirds of SOSIC respondents (65%) agree that years of smoking are very likely to cause asthma, and an additional 26% said it was likely (a similar pattern of results was observed for emphysema). Finally, very few youth in either SOSIC or the YSS recalled stroke as a consequence of smoking. Nevertheless, over two thirds of youth interviewed for SOSIC said that years of smoking are either very likely (39%) or likely (39%) to cause a stroke. Thus, it would appear that, *when prompted*, most young Canadians see a strong causal link between smoking and a number of serious health problems.

Table 7-G
Recall of Smoking-related Health Problems: Comparison of the YSS and the Survey on Smoking in Canada, 1994

Smoking-related Health Problem	YSS (15-19) Current Smoker	YSS (15-19) Never Smoked	SOSIC (15-19) Current Smoker	SOSIC (15-19) Never Smoked	SOSIC (20-64) Current Smoker	SOSIC (20-64) Never Smoked
Lung cancer	91	92	69	70	51	61
Heart problems	53[a]	32	31	16	38	23
Other cancer	31	24	33	28	29	32
Bronchitis/ asthma	21	21	22*	19	29	34

a. Heart disease and heart attack categories combined to compare with SOSIC coding. Heart disease alone was still higher than SOSIC results (45% for current smokers and 26% for never smoked).

* Moderate sampling variability; interpret with caution

Sources: YSS and Survey on Smoking in Canada, Cycle 3, 1994 (Statistics Canada, 1994)

However, there is little indication from YSS results that awareness of the long-term health effects is a sufficient deterrent to starting to smoke. In the YSS, those experimenting with smoking (i.e., beginners) exhibit the same level of awareness about smoking-related health problems as do current smokers and never smokers, and, as seen in Chapter 6, current smokers do hold negative health beliefs about smoking. Thus, knowledge about the general and specific health effects of smoking is not likely to prevent some youth from starting to smoke. This interpretation is consistent with many studies that have found knowledge about the long-term health consequences of smoking to be a weak predictor of adolescent smoking onset. [12]

The degree to which knowledge about health effects has contributed to deterring youth from smoking (the majority of whom are non-smokers) is not fully known. Youth in the YSS that do not smoke also show strong awareness of the health effects of smoking, and most agree that tobacco is addictive and one does not have to smoke for many years before health damage is done (see Chapter 6). Furthermore, in SOSIC,

a. In addition to being restricted to recalling a maximum of four smoking-related health problems, SOSIC respondents were also asked generally about "health problems or illnesses." This may have led to consideration of a broader range of problems, thus decreasing the likelihood that any one problem would be mentioned. Conversely, YSS participants were asked specifically to name as many "long-term health effects" of smoking as they could, and this may have focused their recall on specific chronic diseases. Also note that, unlike SOSIC, participants in the YSS were prompted to be more specific if they stated cancer as a problem (i.e., asked to specify cancer type). This may have contributed to the higher recall rate of lung cancer among YSS youth, compared to youth interviewed in SOSIC.

concern about health effects was one of the most common reasons given by young non-smokers (15-19) for why they had never started to smoke. [5] This suggests that health knowledge may actually be playing an important deterrent role for, at least, some youth. Thus, it may be that knowledge of health consequences is necessary, but insufficient, to deter smoking. Further research will need to identify which groups do and do not hold health as a personal value. Research should also focus on identifying those variables (e.g., perceived personal vulnerability) that may moderate the relationship between health knowledge and smoking status.

Awareness of Cigarette Pack Warning Messages

Under the mandate of the federal government's tobacco control strategy, numerous restrictive regulations and measures have been implemented across Canada in efforts to prevent and reduce tobacco use and to protect the health of Canadians. [7] One key component of these strategies is the placement of specific health warning messages on cigarette packs, on cartons, and at points of purchase (and recently in tobacco advertisements) for the purpose of informing Canadians about the dangers of smoking. At the time of the YSS, there were 11 health warning messages on cigarette packs sold across Canada (see Table 7-B).

As outlined in a recent government report, [4] "strong" health messages are required on cigarette packs that are intended to "enhance public awareness of the hazards associated with smoking by ensuring effective communication of pertinent information about tobacco products and their use." Thus, given this objective, warning label "effectiveness" is not so much an issue of attitude or behaviour modification as successful *communication* of information. There are several components or stages to communication. To be effective, a message has to be noticed, read, understood, believed, seen as personally relevant, and recalled. [1] Thus, warnings will have little impact unless they are seen, believed, personally meaningful, and memorable.

The YSS shows that the majority of young Canadians report having seen warning labels on cigarette packs, with smokers more likely than never smokers to see the messages. Similar findings were observed for 15- to 19-year-olds and adults over the age of 20 surveyed in the National Population Health Survey (NPHS) in 1994-95. [9] Thus, exposure to these messages is quite high among Canadians, and smokers appear to be reading their pack labels. Furthermore, as discussed in Chapter 6, virtually all young Canadians who have seen the health warning labels on cigarette packs believe them to be true.

As stated above, another key element to communication is that the message be remembered. Among all the warnings, "Smoking during pregnancy can harm your baby" and "Cigarettes can kill you" are two of the most memorable, as suggested by their relatively high recall rates. One explanation as to why the pregnancy warning label is memorable may be that young people find it meaningful and personally relevant, since pregnancy is a more common condition in youth than smoking-related diseases. Indeed, the YSS found that young females are more likely to remember this label than young males. The bluntness of the message "Cigarettes can kill you" may explain the high recall rate for this warning. It has been shown, experimentally, that among three warnings presented to teenagers aged 14-17, "Cigarettes can kill you" was the only one recalled by a substantial number, possibly due to its ability to grab one's attention. [3] Similarly, research in Australia has shown that teenagers perceive the label "Smoking kills" to be a powerful message, as well as one that is easy to believe. [1]

The lung cancer warning label is also among the most memorable. This, coupled with the fact that lung cancer as a health consequence of smoking is now common knowledge (i.e., the most frequently stated health problem among both youths and adults), validates the federal government's decision to drop this (for the time being) as a pack warning label (effective September 1994). Similarly, the label "Smoking reduces life expectancy" was taken out of rotation due to its jargon-like text and was replaced with "Cigarettes can kill you," which is the more arresting of the two.

Young Canadians are unlikely to recall the warning label concerning stroke. This may be due to the fact that stroke is coupled with heart disease on the label, thereby impeding its noticeability. However, because it is not likely to be known as a health consequence either, stroke as a health issue may not be meaningful or personally relevant to youth.

Further insight into the personal relevance of health warning labels to young Canadians can be understood when compared to the recall rates of adults. The recall rates for four of the 11 health messages are provided by the NPHS for youth between ages 15 and 19 and

adults aged 20 and over (Table 7-H). The four messages pertain to pregnancy, lung cancer, heart disease, and reduced life expectancy. "Harm during pregnancy" is the label most recalled by youth in the NPHS, as was the case for the YSS. Adults, however, are somewhat less likely to recall that label. Conversely, adults are much more likely than youth to recall the "reduces life expectancy" and "heart disease" labels. This may be because adults are more health-conscious than youth – that is, health or disease consequences may be more personally relevant to adults than to youth. That the lung cancer label was recalled equally well by the age groups in the NPHS demonstrates the fact that it is common knowledge – as befits the first health consequence of smoking to be well researched and widely publicized.

Table 7-H
Recall Rates for Health Warnings in the 1994-95 National Population Health Survey, by Age

	Recall Rate (%)			
	Can Harm Baby when Pregnant	Major Cause of Lung Cancer	Smoking Reduces Life Expectancy	Major Cause of Heart Disease
15-19	76*	69*	#	#
20+	61	63	44*	40*

Note: Only four out of 11 health warning messages were recalled by the total sample.
* Moderate sampling variability; interpret with caution
# Data suppressed due to high sampling variability
Source: National Population Health Survey 1994-1995, Smoking Supplement (Statistics Canada, 1995)

Relationship Between Health Knowledge and Warning Labels

The desirable result of communication is to have recipients integrate the message into their own belief systems. In order to assess the impact of labels on health knowledge, we examined the health knowledge of those who did and did not recall certain labels. Results showed that the effectiveness of pack warning labels in informing youth about the corresponding health problem is apparent for the labels cautioning about lung cancer, heart disease, strokes, and cancer in general. That is, those youth who recall the above warnings are also more likely to recall the corresponding health problems when asked, compared to those who are not aware of the labels. Furthermore, the YSS finding that older current smokers are more likely than their non-smoking peers to mention heart disease and cancer as health problems caused by smoking suggests that these warning messages enhance the awareness of smokers.

A number of health warning labels, such as "Smoking during pregnancy can harm your baby," "Cigarettes can kill you," and "Cigarettes are addictive," are recalled by a relatively high proportion of youth, yet the adverse health effects of smoking suggested by these warning labels are not likely to be mentioned with the same degree of frequency. One explanation may be that the survey question "What health problems can people get if they smoke for many years?" may have triggered recall of specific *personal* diseases and ailments, rather than more general statements about addiction and death (an outcome). Since just about all youth understand that tobacco is addictive (Chapter 6), addiction may not be regarded by youth as a health problem per se; also, addiction does not require many *years* of smoking. Similarly, the warning label "Smoking during pregnancy can harm your baby" addresses a health problem that does not stem from *years* of smoking. To investigate the impact of these types of health warnings on young people's knowledge about adverse health problems requires alternative question wording.

Of course, cigarette pack labels are not the only medium conveying the health hazards of smoking. School education, public education campaigns, and personal communications are other sources of information for youth.[11] This may help explain why young smokers, who virtually all indicate having seen pack warnings, exhibit higher awareness of lung cancer and heart disease as health problems than as warning labels. Additionally, smokers could be integrating the information from pack warnings into their belief system and just not recalling the source (i.e., the pack warning).

Because this is the first generation in Canada to be brought up with these pack warnings, we cannot yet assess what their impact will be on long-term knowledge and smoking behaviour. Do these warnings suppress smoking prevalence rates, amount smoked, and/or years smoked? These are important issues that need to be monitored. We may find that the presence of the pack warnings will have an impact on cessation rates of these young smokers later in life when health becomes a major concern.

Awareness of Own Cigarette Brand Ingredients

Another key element in the federal government's tobacco control strategy is the provision of toxic constituent levels in cigarettes on cigarette packs. In general, few young smokers (ages 15-19) are aware of the levels of tar, nicotine, and carbon monoxide in their cigarettes. This finding implies either that youth are not interested in this type of information and so do not read it or that the information is not comprehensible. Only about one third of these young smokers would like this information displayed more prominently – a proportion similar to that of adult smokers.[9]

At this point, we can only speculate as to why young smokers do not want information about the toxins in their cigarettes. One explanation may be that they simply are not concerned with the toxins they are ingesting; that is, health is not a major concern for young smokers. This is consistent with the findings of the previous sections, which show that youth have relatively high knowledge of smoking-related health consequences and believe the negative health effects of smoking, but many smoke regardless.

Another explanation as to why the majority of young smokers do not desire more salient ingredient lists may be that they are daunted by such technical information, which is difficult to translate into a meaningful level of risk. This is not all that surprising, given that the ingredient levels are conveyed in such an abstract manner on cigarette packs. The YSS has shown that the vast majority of current smokers agree with the presence of health warnings on cigarette packs (which are easy to understand). This suggests that meaningful and comprehensible information about toxic ingredients may be better received.

What type of toxic information should be included and the form it should take require further study. For example, cigarette packs do not offer information about the consequences of ingesting the levels of toxins listed. The smoker may well wonder, is there a monotonic relationship between, for example, nicotine and health effects such as lung cancer or heart disease? What are the repercussions of ingesting 5 mg of nicotine? As long as the hazards of consuming these toxins remain unclear, the information will remain abstract and less meaningful. Other research has shown that teenagers have little understanding of the terms nicotine and carbon monoxide.[1] Perhaps communicating the meaning of the toxins and linking their ingestion to health risks (short- and long-term) would render them meaningful and memorable to the public. Alternatively, a categorical label stating the degree of toxicity or a toxic rating scale might be sufficient to increase smokers' awareness of information on toxic ingredients.

Implications for Regulation and Legislation

The YSS has confirmed that tobacco education in Canada is somewhat lacking among youth under age 12 (i.e., just prior to the typical age of smoking onset; see Chapter 3) and in certain provinces, such as Quebec. It is not clear whether this is due to lack of education, poor teaching methods and materials that are not well remembered, or denial. Although tobacco education will not necessarily prevent smoking uptake or lead to cessation – indeed, young smokers in the YSS are knowledgeable about smoking-related diseases – it is one key element in the government's strategy to inform the Canadian public about the health hazards of smoking.[4] The YSS has shown that children and young adolescents who report being taught about health and smoking are aware of more health problems caused by smoking than those who were not taught. It is crucial that smoking prevention education be delivered early in school, before the period of smoking experimentation, and reinforced periodically. These programs should be given high priority and be of high quality so that they are interesting and memorable to youth. It is unlikely that other measures to curtail smoking (e.g., restrictions on public smoking) would be accepted without a general understanding of the health hazards involved.

Findings from the YSS suggest that cigarette pack warning labels are a credible source of smoking-related health information, even without attribution of the warning to a source. However, not all health messages are equally effective; the more powerful and personally relevant messages seem to be more memorable. In order to be salient for youth, certain warning messages should be targeted to this age group. The messages should not only be powerful and dramatic, but also be perceived as relevant by this age group. This may be achieved by the use of certain features such as short, blunt wording, as well as the explicit mention of the target group on the label.[1] Labels should also convey the fatal nature of the smoking-related diseases by including information about prognosis, time to death, or years of life lost. Moreover, some research has shown that long-term health consequences of smoking are irrelevant to youth and that short-term or immediate health effects

(e.g., shortness of breath, coughing, stained teeth) may be more powerful deterrents to smoking onset. [8,12] Thus, the communication of the short-term effects caused by smoking should be included as additional or alternative messages on warning labels.

Given that the provision of information on toxic ingredients is an integral part of the government's mandate to inform the public about the hazards of smoking, such information should continue to be provided. The YSS shows that youth cannot recall the information as it is currently presented on cigarette packs. Therefore, methods of conveying such information in a more accessible manner (i.e., increasing visibility and comprehensibility) should be considered. Additionally, to be relevant to youth, as well as adults, the information should be linked to acute personal consequences.

Implications for Education and Message Promotion

Findings from the YSS suggest that about one quarter of Canadian youth either have not received or do not remember receiving school-based tobacco education. If the latter is the case, it may be due to the quality of the curricula. This implies that there is a need for more interesting programs in schools, which are allotted a greater proportion of time.

Some have questioned the efficacy of all smoking education programs, especially those that address the long-term health consequences of smoking. [8,12] However, given that most youth today do not smoke and that health concerns emerge as important reasons given by youth for not smoking, [5] such disease-oriented education is likely important, but not sufficient to deter youth from smoking. Because young people are thought to have a sense of invulnerability and a short-term perspective, [12] it may be difficult for some to comprehend the long-term consequences of smoking or to believe that they personally may be at risk for such diseases if they smoke. Addressing short-term health consequences of smoking such as cardiovascular problems that decrease sports performance and physical consequences that decrease attractiveness – since in Chapter 6 it was found that the majority of youth prefer to date non-smokers – may be particularly effective with those youth for whom the long-term health effects of smoking hold little meaning. Further, tobacco education programs should address the toxic constituents in cigarettes in a concrete, interesting manner to convey information about the hazards involved.

What is probably most important, however, with respect to educational programs is that integrative approaches to smoking prevention and cessation need to be emphasized, approaches that address a variety of issues, such as knowledge about health effects, attitudes and beliefs related to smoking, social and coping skills, etc. Failure to produce positive change in one or more of these areas will decrease the likelihood of success. [2]

Implications for Future Monitoring and Further Research

Future monitoring endeavours should assess youth's knowledge of both short- and long-term smoking-related health effects. Tracking awareness of the health warning labels and any other health information (i.e., toxic ingredients) on cigarette packs and advertisements is also crucial in evaluating their long-term impact. It is also important to continue to identify what subgroups are and are not receiving (or remembering) school-based tobacco education.

Using the existing YSS data, research should examine the likelihood of reporting having received school-based education by the types of education programs in place in order to shed light on what is being delivered (or well remembered). Further, research efforts should identify which groups tend to recall both the specific health consequences of smoking and the corresponding warning labels. Are the same people recalling both? Are they current smokers or never smokers?

Research that merits further investigation includes assessing young smokers' perception of personal risk of suffering from long-term health consequences due to smoking. Whether they are suffering from any short-term health effects also deserves attention. Is personal health a value to them? Also of import is whether youth know others who have suffered or are suffering from smoking-related health problems. The YSS has shown that young smokers are not aware of the level of toxins in their cigarettes. Thus, it seems worthwhile to investigate whether they understand what the toxins are and what it means to ingest these constituents.

Finally, Chapters 6 and 7 demonstrate that smokers in the YSS seem to be aware of the negative health consequences of smoking. Longitudinal research designs are required to determine the effects of both the warning label messages and health knowledge on cessation later in life.

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Table 7-1
Ever Received Education About Smoking-related Health Problems in School, by Sex and Age, Canada, 1994

	Pop. Est. ('000)	Received Education (%)		
		Yes	No	Don't Know
Total, 10-19	**3,881**	**76**	**17**	**7**
10-14	1,949	73	15	12
15-19	1,932	79	20	1
10-12	1,166	70	16	14
13-14	783	78	13	9
15-17	1,149	80	19	1*
18-19	783	77	21	2*
10	391	65	17	18
11	388	72	18	11
12	388	77	15	8
13	391	78	14	8
14	391	80	12	8
15	385	84	16	#
16	380	79	20	#
17	383	78	20	#
18	389	78	21	#
19	394	77	21	#
Males, 10-19	**1,986**	**76**	**17**	**6**
10-14	997	73	15	12
15-19	989	79	20	1*
10-12	596	70	16	14
13-14	401	78	14	8
15-17	1,149	80	19	1*
18-19	400	76	23	#
Females, 10-19	**1,896**	**76**	**17**	**7**
10-14	953	73	15	12
15-19	943	79	20	2*
10-12	571	70	16	14
13-14	382	78	12	10
15-17	560	79	20	#
18-19	383	79	19	#

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-2
Ever Received Education About Smoking-related Health Problems in School, by Province and Age, Canada, 1994

	Pop. Est. ('000)	Received Education (%)		
		Yes	No	Don't Know
Canada, 10-19	**3,881**	**76**	**17**	**7**
10-14	1,949	73	15	12
15-19	1,932	79	20	1
Newfoundland, 10-19	**93**	**86**	**10**	**5**
10-14	45	85	7	9
15-19	48	87	12	#
Prince Edward Island, 10-19	**20**	**75**	**17**	**7**
10-14	10	77	11	12
15-19	10	74	24	#
Nova Scotia, 10-19	**126**	**87**	**9**	**5**
10-14	62	85	6	9
15-19	64	88	11	#
New Brunswick, 10-19	**107**	**78**	**15**	**7**
10-14	52	78	10	12
15-19	55	78	20	#
Quebec, 10-19	**966**	**64**	**29**	**8**
10-14	478	59	26	14
15-19	487	67	31	#
Ontario, 10-19	**1,415**	**83**	**11**	**5**
10-14	712	80	10	10
15-19	704	86	13	#
Manitoba, 10-19	**150**	**78**	**14**	**8**
10-14	75	77	10	13
15-19	75	80	18	#
Saskatchewan, 10-19	**148**	**83**	**11**	**6**
10-14	77	82	8	10
15-19	71	84	15	#
Alberta, 10-19	**387**	**80**	**14**	**7**
10-14	202	77	11	12
15-19	185	83	16	#
British Columbia, 10-19	**470**	**71**	**22**	**8**
10-14	238	67	19	14
15-19	232	75	24	#

Data suppressed due to high sampling variability

Table 7-3
Smoking-related Health Problems Stated, by Sex and Age,[a] Canada, 1994

		Stated Health Problem (%)									
	Pop. Est. ('000)	Lung Cancer	Heart Disease (Problems)	Heart Attack (Failure)	Stroke	Bron-chitis	Emphy-sema	Asthma	Other Respira-tory Diseases	Other Cancer	Other Problems
Total, 10-19											
10-14	1,949	56	18	9	1	2	5	5	37	35	45
15-19	1,932	92	31	14	6	13	25	13	22	26	13
10-12	1,166	49	16	9	1*	1*	3	3	38	34	47
13-14	783	66	20	9	2*	3*	8	6	36	37	44
15-17	1,149	92	29	13	6	12	22	11	21	24	12
18-19	783	92	35	15	8	13	30	15	24	29	13
Males, 10-19											
10-14	997	53	16	9	2*	2*	4	3	37	35	43
15-19	989	92	28	12	5	12	22	10	21	26	13
10-12	596	47	15	8	1*	1*	3*	3*	38	33	44
13-14	401	64	18	9	3*	3*	6*	3*	34	37	43
15-17	589	92	25	11	4*	12	19	9	21	23	12
18-19	400	92	34	12	6*	13	27	12	22	31	14
Females, 10-19											
10-14	953	58	19	9	1*	2*	6	6	38	36	48
15-19	943	92	34	16	8	13	28	15	24	26	12
10-12	571	52	17	9	#	#	3*	4*	38	36	50
13-14	382	68	23	8	#	4*	10	9	37	37	44
15-17	560	92	34	14	7	13	25	14	22	25	13
18-19	383	92	35	18	9*	14	33	17	26	28	12

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-4
Smoking-related Health Problems Stated, by Type of Smoker and Age,[a] Canada, 1994

		Stated Health Problem (%)									
	Pop. Est. ('000)	Lung Cancer	Heart Disease (Problems)	Heart Attack (Failure)	Stroke	Bron-chitis	Emphy-sema	Asthma	Other Respira-tory Diseases	Other Cancer	Other Problems
Current Smokers, 10-19											
10-14	128	61	21	6*	#	#	9*	9*	37	36	43
15-19	452	91	45	17	9	13	27	12	21	31	13
10-12	29	53	18*	#	#	#	#	#	29*	36*	41*
13-14	99	63	22	7*	#	#	10*	9*	39	36	43
15-17	225	90	44	16	8*	14*	26	10*	22	26	12
18-19	226	92	47	19	9*	13*	29	14*	20	37	14
Beginning Smokers, 10-19											
10-14	138	64	20	#	#	#	7*	7*	31	41	43
15-19	118	92	36	9*	#	9*	27	12*	22*	27	10*
10-12	51	61	15*	#	#	#	#	#	27*	41	42
13-14	87	65	23	#	#	#	10*	9*	33	41	43
15-17	75	89	36*	#	#	#	23*	#	18*	23*	#
18-19	44	98	35*	#	#	#	34*	#	30*	33*	#
Former Smokers, 10-19											
10-14	9	59*	#	#	#	#	#	#	#	#	#
15-19	47	94	34	#	#	#	36*	#	15*	25*	#
10-12	#	#	#	#	#	#	#	#	#	#	#
13-14	6	#	#	#	#	#	#	#	#	#	#
15-17	26	95	37*	#	#	#	#	#	#	#	#
18-19	21	92	#	#	#	#	#	#	#	34*	#
Never Smokers, 10-19											
10-14	1,613	55	17	9	1	2	4	4	38	35	46
15-19	1,305	92	26	13	6	13	24	13	23	24	13
10-12	1,063	49	16	9	1*	1*	3	3	39	34	47
13-14	550	66	20	10	2*	3*	8	5	36	37	44
15-17	814	93	24	12	5	12	20	12	22	24	13
18-19	491	91	29	14	7	14	30	15	25	25	13

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-5
Number of Smoking-related Health Problems Stated, by Type of Smoker and Age,[a] Canada, 1994

	Pop. Est. ('000)	Number of Health Problems Stated (%)			
		0	1	2	3+
Total, 10-19					
10-14	1,949	4	44	36	17
15-19	1,932	1	27	35	37
10-12	1,166	5	49	34	12
13-14	783	2*	37	38	24
15-17	1,149	#	29	36	34
18-19	783	#	23	34	43
10	391	8	53	31	8
11	388	5*	49	34	12
12	388	3*	44	38	15
13	391	2*	40	37	21
14	391	2*	33	38	27
15	385	#	37	36	27
16	380	#	30	34	35
17	383	#	21	38	39
18	389	#	22	35	42
19	394	#	24	32	43
Current Smokers, 10-19					
10-14	128	#	35	39	22
15-19	452	#	19	33	47
10-12	29	#	43*	34	#
13-14	99	#	33	41	24
15-17	225	#	21	36	43
18-19	226	#	18	30	52
Beginning Smokers, 10-19					
10-14	138	#	37	39	21
15-19	118	#	27	32	41
10-12	51	#	41	44	#
13-14	87	#	38	36	27
15-17	75	#	29	37	35
18-19	44	#	25*	23	53
Former Smokers, 10-19					
10-14	9	#	#	#	#
15-19	47	#	16*	39	45
10-12	#	#	#	#	#
13-14	6	#	#	#	#
15-17	26	#	#	42*	45*
18-19	21	#	#	#	45*

Table 7-5 (Cont'd)
Number of Smoking-related Health Problems Stated, by Type of Smoker and Age,[a] Canada, 1994

	Pop. Est. ('000)	Number of Health Problems Stated (%)			
		0	1	2	3+
Never Smoker, 10-19					
10-14	1,613	4	45	35	16
15-19	1,305	#	30	36	34
10-12	1,063	5	49	34	12
13-14	550	2*	38	37	23
15-17	814	#	32	36	31
18-19	491	#	26	37	37

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-6
Number of Smoking-related Health Problems Stated, by Whether or Not Received Smoking-related Education and Age[a], Canada, 1994

Taught About Smoking and Health	Pop. Est. ('000)	Number of Health Problems Stated (%)			
		0	1	2	3+
Total, 10-19					
10-14	1,949	4	44	36	17
15-19	1,932	1	27	35	37
10-12	1,166	5	49	34	12
13-14	783	2*	37	38	24
15-17	1,149	#	29	36	34
18-19	783	#	23	34	43
Yes, 10-19					
10-14	1,429	3	41	36	20
15-19	1,528	#	25	35	39
10-12	816	4	46	36	14
13-14	613	1*	35	37	27
15-17	922	#	27	37	36
18-19	606	#	23	33	45
No, 10-19					
10-14	289	6*	52	34	9
15-19	379	#	32	36	32
10-12	188	7*	57	29	8*
13-14	102	#	43	43	11*
15-17	215	#	37	35	27
18-19	164	#	25	37	38

Note: Those who did not know whether they had received education (7% of the total sample) were excluded.

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-7
Ever Seen Health Warning Messages on Cigarette Packs, by Type of Smoker, Age, and Sex, Canada, 1994

	Pop. Est. ('000)	Have You Ever Seen Health Warning Messages on Cigarette Packages (% yes)		
		Total	Male	Female
Total, 10-19	**3,881**	**84**	**82**	**86**
10-14	1,949	74	71	78
15-19	1,932	93	93	94
10-12	1,166	68	65	70
13-14	783	84	79	89
15-17	1,149	92	91	92
18-19	783	95	95	96
10	391	57	54	60
11	388	70	68	73
12	388	76	74	78
13	391	83	80	86
14	391	85	78	91
15	385	90	88	92
16	380	91	91	92
17	383	94	94	94
18	389	95	95	96
19	394	95	95	95
Current Smokers, 10-19	**580**	**98**	**97**	**99**
10-14	128	93	90	95
15-19	452	100	99	100
10-12	29	91	89	92
13-14	99	93	91	96
15-17	225	100	100	100
18-19	226	99	99	100
Beginning Smokers, 10-19	**256**	**95**	**92**	**97**
10-14	138	92	87	95
15-19	118	99	99	99
10-12	51	87	80	94
13-14	87	95	92	96
15-17	75	99	99	99
18-19	44	99	97	100
Former Smokers, 10-19	**56**	**99**	**98**	**100**
10-14	9	93	89	#
15-19	47	100	100	100
10-12	#	#	#	#
13-14	6	91	#	#
15-17	26	100	100	100
18-19	21	100	100	100

Table 7-7 (Cont'd)
Ever Seen Health Warning Messages on Cigarette Packs, by Type of Smoker, Age, and Sex, Canada, 1994

	Pop. Est. ('000)	Have You Ever Seen Health Warning Messages on Cigarette Packages (% yes)		
		Total	Male	Female
Never Smokers, 10-19	**2,918**	**79**	**78**	**81**
10-14	1,613	71	68	74
15-19	1,305	90	90	91
10-12	1,063	66	63	68
13-14	550	79	75	85
15-17	814	89	88	89
18-19	491	93	93	93

Data suppressed due to high sampling variability

Table 7-8
Health Warning Messages Recalled, by Sex and Age,[a] Canada, 1994

		Health Warning Messages Recalled (%)										
	Pop. Est. ('000)	Harms Fetus/ Preg-nancy	Reduces Life Expec-tancy	Major Cause of Lung Cancer	Causes Fatal Lung Disease	Major Cause of Heart Disease	Causes Strokes	Causes Cancer	Ciga-rettes Are Addic-tive	Ciga-rettes Can Kill You	Harms Non-smokers	Can Harm Children
Total, 10-19												
10-14	1,439	49	3	30	9	8	#	20	6	26	5	5
15-19	1,795	80	19	51	19	19	4	18	12	39	13	-
10-12	785	41	2*	26	10	7	#	18	4	22	4	5
13-14	654	58	5	34	9	10	#	21	8	30	6	6
15-17	1,052	78	17	51	18	19	3*	18	11	37	13	-
18-19	743	83	22	52	20	20	4*	19	13	41	14	-
Males, 10-19												
10-14	701	41	3*	25	9	8	#	20	5	26	4	5
15-19	914	76	19	50	19	17	3*	19	11	40	12	-
10-12	385	33	2*	23	10	7	#	19	4*	22	2*	5*
13-14	316	50	5*	29	8	9	#	21	8	29	6*	5*
15-17	536	73	17	50	18	17	3*	19	10	39	12	-
18-19	378	80	23	50	20	18	4*	19	12	43	13	-
Females, 10-19												
10-14	738	56	3*	34	10	9	#	19	6	26	6	6
15-19	881	85	19	53	19	21	4*	18	12	37	14	-
10-12	400	48	#	29	9	7	#	18	4*	22	5*	5*
13-14	338	66	4*	39	10	11	#	21	8	30	6*	7*
15-17	516	83	17	52	19	20	3*	17	12	35	14	-
18-19	365	87	22	54	19	22	5*	20	14	40	15	-

Note: "Other" category not shown.

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

- Data not available

Table 7-9
Health Warning Messages Recalled, by Type of Smoker and Age,[a] Canada, 1994

		Health Warning Messages Recalled (%)										
	Pop. Est. ('000)	Harms Fetus/ Preg-nancy	Reduces Life Expec-tancy	Major Cause of Lung Cancer	Causes Fatal Lung Disease	Major Cause of Heart Disease	Causes Strokes	Causes Cancer	Ciga-rettes Are Addic-tive	Ciga-rettes Can Kill You	Harms Non-smokers	Can Harm Children
Current Smokers, 10-19												
10-14	118	63	6*	29	15*	14*	#	20	22	52	15*	15*
15-19	448	88	22	52	27	30	7*	20	19	61	24	-
10-12	26	60	#	26*	#	#	-	21*	#	44*	#	#
13-14	93	63	7*	30	17*	15*	#	20*	21	55	16*	15*
15-17	225	85	19	52	25	30	5*	19	21	58	24	-
18-19	223	91	25	52	29	29	8*	21	18	64	24	-
Beginning Smokers, 10-19												
10-14	126	59	#	36	7*	8*	-	19	5*	33	5*	6*
15-19	117	86	16*	55	21*	24*	#	16*	15*	46	12*	-
10-12	44	47	#	26*	#	#	-	17*	#	26*	#	#
13-14	82	66	#	42	8*	9*	-	20*	#	37	#	#
15-17	74	83	16*	50	20	24*	#	13*	15*	52	#	-
18-19	43	90	#	63	22*	25*	#	22*	#	38*	#	-
Former Smokers, 10-19												
10-14	8	60*	#	#	#	#	#	#	#	#	#	#
15-19	46	76	#	42*	#	#	#	20*	#	51	#	#
10-12	#	#	#	#	#	#	#	#	#	#	#	#
13-14	5	74*	#	#	#	#	-	#	#	#	-	#
15-17	26	72	#	31*	#	#	#	#	#	54*	#	#
18-19	21	82	#	57*	#	#	#	#	#	47*	#	#
Never Smokers, 10-19												
10-14	1,132	46	2	29	9	8	#	20	4	21	4	4
15-19	1,175	77	19	51	16	15	3*	18	8	29	9	-
10-12	696	40	1*	26	10	6	#	19	3*	21	4	5
13-14	436	55	4*	34	7	9	#	22	5*	22	4*	4*
15-17	720	75	17	51	16	14	3*	18	8	28	9	-
18-19	455	79	22	51	14	15	2*	18	10	30	9	-

Note: "Other" category not shown.

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

- Data not available

Table 7-10
Number of Health Warning Messages Recalled, by Type of Smoker and Age, Youth Who Have Seen Warning Labels, Canada, 1994

	Pop. Est. ('000)	Number of Health Warning Messages Recalled (%)			
		0	1	2	3+
Total, 10-19					
10-14	1,439	18	34	29	18
15-19	1,795	4	17	30	49
10-12	785	22	39	28	12
13-14	654	14	28	32	26
15-17	1,052	4	19	32	45
18-19	743	4*	14	27	55
10	220	25	45	22	8*
11	270	22	38	28	12
12	294	19	35	31	15
13	324	14	31	31	24
14	330	14	26	32	28
15	347	6*	24	33	37
16	347	4*	18	32	46
17	358	3*	16	30	51
18	371	3*	15	28	54
19	372	4*	13	27	56
Current Smokers, 10-19					
10-14	118	10*	18	27	45
15-19	448	#	7*	18	74
10-12	26	#	22*	29*	36*
13-14	93	10*	17*	26	47
15-17	225	#	10*	20	69
18-19	223	#	5*	15	78
Beginning Smokers, 10-19					
10-14	126	13*	28	35	24
15-19	117	#	9*	30	59
10-12	44	20*	39	25	16*
13-14	82	9*	22*	40	28
15-17	74	#	#	30*	57
18-19	43	#	#	31*	61
Former Smokers, 10-19					
10-14	8	#	#	#	#
15-19	46	#	#	26*	53
10-12	#	#	#	#	#
13-14	5	#	#	#	#
15-17	2	#	#	36*	36*
18-19	21	#	#	#	74

Table 7-10 (Cont'd)
Number of Health Warning Messages Recalled, by Type of Smoker and Age[a], Youth Who Have Seen Warning Labels, Canada, 1994

	Pop. Est. ('000)	Number of Health Warning Messages Recalled (%)			
		0	1	2	3+
Never Smokers, 10-19					
10-14	1,132	20	37	29	15
15-19	1,175	5	22	35	38
10-12	696	22	40	28	11
13-14	436	16	33	31	21
15-17	720	5	23	36	36
18-19	455	5*	19	34	42

Note: Youth who have ever seen warning labels constitute 84% of the total sample.

a. Estimates for age 10-19 not provided due to method effect.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 7-11
Awareness of Own Cigarette Brand Ingredient Levels and Preference to See Ingredients Displayed More Prominently, by Sex and Age, Current Smokers Aged 15-19 with Usual Cigarette Brand, Canada, 1994

	Pop. Est. ('000)	Toxic Ingredients (% correct)			Want Ingredients Displayed More Prominently (% yes)
		Tar	Nicotine	Carbon Monoxide	
Total, 15-19	**390**	**39**	**42**	**26**	**37**
15-17	191	38	41	25*	42
18-19	199	40	44	27*	32
Males, 15-19	**191**	**43**	**45**	**26***	**36**
15-17	86	43	46	25*	44
18-19	105	43	44	26*	29
Females, 15-19	**199**	**36**	**40**	**26***	**37**
15-17	105	34	37	25*	40
18-19	94	37	43	27*	35

Note: Current smokers with a usual cigarette brand in the household component of the survey constituted 10% of the total sample.

* Moderate sampling variability; interpret with caution

Table 7-12
Summary Score for Overall Knowledge of Toxic Ingredient Levels, by Sex and Age, Current Smokers Aged 15-19 with Usual Cigarette Brand, Canada, 1994

	Pop. Est. ('000)	Overall Knowledge of Ingredient Levels Summary Score (range 0-3) (%)		
		Score = 0	Score = 1	Score = 2+
Total, 15-19	**390**	**47**	**38**	**15**
15-17	191	47	37	15*
18-19	199	46	40	15*
Males, 15-19	**191**	**42**	**41**	**17**
15-17	86	43	38	18*
18-19	105	41	43	16*
Females, 15-19	**199**	**51**	**36**	**13***
15-17	105	51	37	13*
18-19	94	51	36	13*

Note: Current smokers with a usual cigarette brand in the household component of the survey constituted 10% of the total sample.

* Moderate sampling variability; interpret with caution

Chapter 8

Tobacco Purchasing and Marketing

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Highlights

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- Source of Cigarettes
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- Sales to Minors
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References

Highlights

- Corner stores are the number one source for cigarettes. While youth aged 10-14 usually obtain cigarettes indirectly, through another person, most adolescents 15 and older usually buy their cigarettes from a corner store. In Manitoba, Saskatchewan, Alberta, and British Columbia, gas stations are also a popular source of cigarettes for youth aged 15-19.

- About half of children aged 10-14 who have gone to a store to buy cigarettes have *never* been asked their age and have *never* been refused when trying to buy cigarettes.

- At all ages, cigarettes are most commonly purchased in packages of 25. While it is illegal to sell single cigarettes, buying singles is popular with the younger adolescents and with current non-daily smokers. Half of those under 15 occasionally buy singles.

- A small number of cigarette brands and brand families clearly dominate the youth market. Eighty percent of smokers say they usually smoke the same brand, and, of these, 93% named one of the three most popular brands as their usual brand. This is true of even the youngest smokers.

- Nearly all youth are aware of the colour and other visual characteristics that differentiate and identify cigarette brands. Ninety-five percent of youth can identify at least one cigarette brand name from the colour and graphical design of its package alone. An example of generic packaging is deemed far less appealing than any of the commercially available brands.

- Forty percent of all adolescents can recall a sports or cultural event that had been sponsored by a tobacco company. Boys are somewhat more likely than girls to recall such an event, with sporting events making up the majority of sponsored events recalled.

- These findings have a number of important implications for tobacco control: increased enforcement of restrictions on sales to minors, increased control over sponsorship and other forms of advertising, and the introduction of generic cigarette packages.

Methods

Definitions

Source of Cigarettes

Participants in both survey components were asked where they usually get their cigarettes (SS25, HH22, that is, School Survey Question 25 and Household Survey Question 22; see Appendix A). In the household component, these questions were asked only of young people who had smoked at least one cigarette in the 30 days before the survey. In the school component, the question could be answered by everyone, but the results are reported only for those who smoked in the 30 days prior to the survey for consistency across the two components.

Attempts to Buy Cigarettes

In the household component, all respondents were asked "Have you ever gone into a store to buy cigarettes for yourself or for someone else?" (HH38). For the school component, the same information is derived from Question 28 (SS28), "Have you ever been asked your age when buying cigarettes in a store for yourself or someone else?" – for which one response option is "I have never bought cigarettes in a store." Despite the slight difference in question structure, the two versions obtained the same information.

In both components, all of those who had ever attempted to buy cigarettes were asked if they had ever been asked their age when trying to buy cigarettes in a store (SS28, HH39) and if someone had ever refused to sell them cigarettes (SS29, HH40). (Chapter 9 addresses knowledge on the part of the adolescents of legal age for purchase.) Because these questions asked about lifetime experience, rather than recent experience, the results should be interpreted with some caution. Other things being equal, older youth should be more likely to have "ever" been asked their age, since they are likely to have made more attempts in total than younger ones. It is uncertain, however, whether people of different ages would answer the question the same way. Older respondents might be less likely to say they have ever been asked their age if this has not happened recently.

Quantity Purchased and Usual Brand and Type

If a respondent had smoked in the 30 days preceding the survey, he or she was asked for more information, such as the usual pack size purchased (SS26, HH23). These questions included the option "I don't usually

buy packs," which could be taken to mean that they don't usually buy cigarettes in packages or that they do not usually buy cigarettes.

All of those who had smoked in the 30 days before the survey were asked if they occasionally bought cigarettes one at a time or "singles" (SS27A, HH24) and where they bought singles. Smokers were also asked if they usually smoked the same brand (SS21a, HH13) and the brand and type of cigarettes (SS21b, HH14).

Respondents aged 15-19 were also asked (HH14b) to describe the type of cigarettes they usually bought (e.g., menthol, "light," king size). It is important to note that this was asked as an open-ended question and that people volunteered varying amounts of information. For example, while some people indicated that they smoked filtered cigarettes, the percentage would be different from that obtained if all young people were asked "Do you smoke filtered cigarettes?"

As discussed in Chapter 2, cigarette brand names were suppressed with other sensitive or identifying information by Statistics Canada, after the data collection phase. Actual names of cigarette brands and tobacco corporations have been replaced with arbitrary letter names (e.g., Brand A, Brand B) in this technical report as well as on the public use data tape.

Brand Recognition and Perceived Attractiveness of Cigarette Packages

In the school component of the Youth Smoking Survey (YSS) (ages 10-14), additional information was obtained about recognition of the packaging of popular brands by their design and colour (SS68). This information was limited to the school sample because it required the use of a visual aid. When the students reached the end of the School Survey questionnaire, they were given a handout that depicted the packages of best-selling Canadian brands of cigarettes. The packages shown were accurate to the originals in colour and graphics but did not have any brand-identifying text. At the time of the survey, three of the brands had recently changed their package designs (although features such as predominant colours do not change when cigarette packages are redesigned). The handout also included an example of generically packaged cigarettes (not actually on the market).

Students were asked to indicate which package, identified by a coded number, matched each of the following cigarette brands presented in a list: Belvedere, Benson & Hedges, Craven A, Du Maurier, Export A, Matinée, Number 7, Player's, Rothman's, or "none of the above" (SS68). An instruction box told students to leave the boxes empty if unsure and included the words "do not guess" in bold lettering. Students were also asked which package design and colour they found the most and the least attractive (SS69 and SS70).

Because this portion of the data collection was completed after the rest of the questionnaire, the presentation of cigarette company names should not have assisted recall in other parts of the questionnaire (such as recall of tobacco company-sponsored sports and cultural events).

Knowledge of Cigarette Corporation-sponsored Events and Advertisements

In both samples, young people were asked if they knew of any events that were sponsored by corporations with a tobacco brand name as part of the corporate name (SS52a, HH58). If they could recall such an event, they were asked to name the event and the sponsor (SS52b, HH59). Up to five responses were coded. Responses were coded in such a way as to distinguish between events recalled correctly by both company name and the name of the event and incomplete answers such as just the event or just the company. Responses were also coded according to individual company sponsors. Again, corporation names are not released in this report. People were asked if they had seen ads for such an event (SS53a, HH60) and, if so, where they had seen the ads (SS53b, HH61).

For this report, two new derived variables were created by Health Canada relating specifically to either sports or cultural events. These variables classified respondents according to whether or not they were able to recall a specific sporting event sponsored by a tobacco company and whether or not they were able to recall one or more specific music or cultural events. Only "complete" answers were counted (i.e., a correct recall of both the event and the sponsoring company).

Sample and Response

Much of this chapter refers to information obtained only from a subsample of all of those surveyed, specifically those who smoked at least one cigarette in the 30 days preceding the survey (current daily and

non-daily smokers plus beginning smokers) and those who have ever purchased cigarettes. Other sections present information obtained from all respondents (e.g., recall of tobacco company-sponsored events).

It is important to note when percentages are reported on the basis of this type of subsample, as they cannot be directly related to the population as a whole. It is also important to remember that percentages based on small subsamples have much higher variability than percentages reported for the population as a whole. As a result, reporting percentages within these subpopulations by other factors such as province or individual years of age frequently results in estimates that are too variable to report. As described in Chapter 2, all estimates with a high variability (coefficient of variation of 33% or greater) have been suppressed, and those with moderate variability (coefficient of variation between 16.5% and 33%) have been marked with an asterisk, indicating that they should be used with caution.

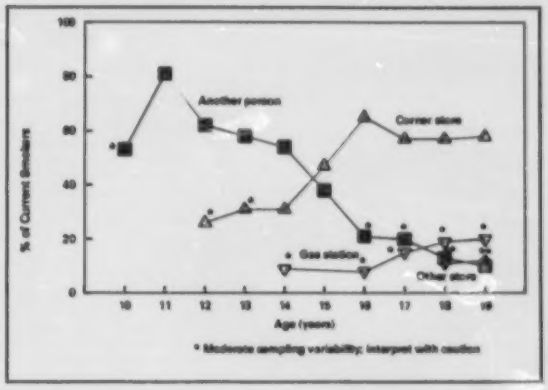
As discussed in Chapter 2, unless otherwise stated, less than 10% of the population asked a question answered with "don't know" or didn't answer the question. Where the missing values make up less than 10%, they are not reported but distributed proportionately across the other categories. In other words, the percentages are calculated on the basis of all who did give an answer to the question. The exceptions to this in Chapter 8 are the following. Overall, 10% of those surveyed said "don't know" when asked if they had seen advertising for a sports or cultural event sponsored by a tobacco corporation, and this varied widely by age and sex. Therefore, the percentage who don't know is reported in Table 8-12 and Table 8-13. Otherwise, "don't know" or other missing values typically account for 2-4% of the responses.

Results

Source of Cigarettes

Of young people who have smoked at least one cigarette in the 30 days preceding the survey, the most common sources of these cigarettes were corner stores, gas stations, or another person (Table 8-1). Few young people (value too small to be reliable) said that their usual source of cigarettes was from vending machines (Table 8-1).

Figure 8-A
Usual Source of Cigarettes, by Age, Current and Beginning Smokers, Canada, 1994



While sex differences in purchasing behaviour were minor (Table 8-1), smokers of both sexes displayed pronounced age differences in their usual source of cigarettes (see Fig. 8-A). For youth aged 10-14, cigarettes were most often obtained through another person (66% of 10- to 12-year-olds and 56% of 13- to 14-year-olds either usually purchased them from a friend or were given cigarettes). Between the ages of 14 and 16, the percentage getting cigarettes from other people declines markedly, and reliance on stores increases (Fig. 8-A). Only 19% of those aged 15-19 usually got their cigarettes from another person. For those aged 15-19, most smokers usually buy cigarettes at corner stores (57%) or gas stations (15%), and all other types of stores account for a small part of the access to cigarettes compared to these two sources. Only among Canadian youth aged 18-19 are gas stations an important source of cigarettes (20%), likely because this age group drives most often.

Not surprisingly, current daily smokers most often buy their own cigarettes and tend not to rely on other people for cigarettes; 25% of current non-daily smokers and 68% of those beginning to smoke usually get their cigarettes from someone else, compared to 10% of daily smokers (Table 8-2). Among young people who had smoked in the preceding 30 days, those who have one or more smokers in their household are not more likely to get their cigarettes from another person as opposed to a retail store (data not shown). However, young people are more likely to be smokers in the first place if someone else in their home is a smoker (Chapter 5).

Figure 8-B
Smokers Who Usually Get Cigarettes at a Corner Store, by Province and Age, Current and Beginning Smokers, Canada, 1994

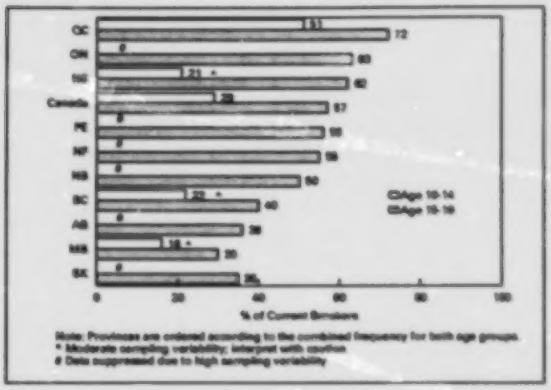


Figure 8-C
Ever Gone to a Store to Buy Cigarettes, by Age and Sex, Canada, 1994

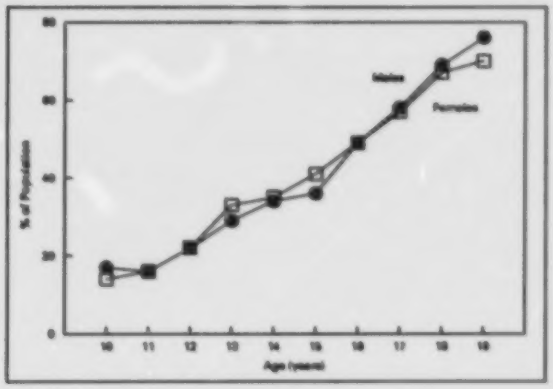
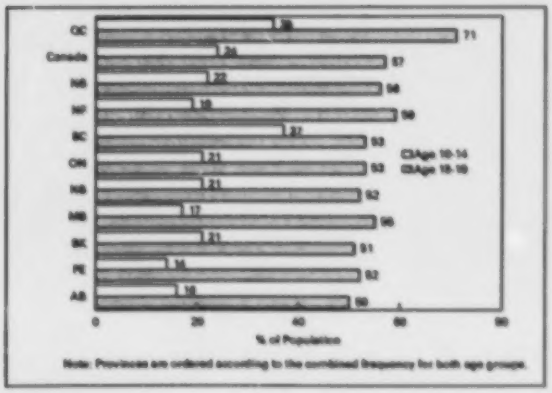


Figure 8-D
Ever Gone to a Store to Buy Cigarettes, by Province and Age, Canada, 1994



Comparisons at the provincial level show substantial variation in the degree to which corner stores have "cornered the market" on sales to children (Fig. 8-B). Corner stores are the primary source in both Quebec and Ontario, especially the former. Corner stores also dominate the market throughout the Atlantic provinces; in the west, gas stations are also an important source of cigarettes. In all provinces west of Ontario, 20% or more of smokers usually obtain cigarettes from gas stations. Again, it is the oldest teenagers who are most likely to buy cigarettes at gas stations (Table 8-3).

Labour force participation does not appear to be related to where smokers usually get their cigarettes. When adolescents who work fewer than 10 hours per week are compared with those who work for pay 10 or more hours per week, there are no differences in usual source of cigarettes (data not shown).

Attempts to Purchase Cigarettes

It is quite common for Canadian youth to go to a store to buy cigarettes; 41% of those aged 10-19 had done so (Table 8-4). Attempts to purchase are not found only among those who have become established smokers; more young people had ever gone to a store to purchase cigarettes (for themselves or for another person) than were current smokers at the time of the survey.

The percentage who have gone to a store to buy cigarettes increases steadily with age (Fig. 8-C). Even among 10- to 12-year-olds, 18% say they have gone to a store to buy cigarettes at least once. The percentage increases with age to 71% of 18- to 19-year-olds. There are no sex differences in trying to buy cigarettes.

At all ages, the majority of current daily, current non-daily, and former smokers have gone to a store to purchase cigarettes. Over 90% of current daily smokers aged 10-19 have purchased cigarettes. Even among 10- to 12-year-olds, 96% of current daily smokers have bought cigarettes, and 76% of current non-daily smokers aged 10-12 have done so.

Provincial differences in the frequency of reporting having ever gone to a store to buy cigarettes largely parallel provincial differences in smoking behaviour (Table 8-5, Fig. 3-H). Adolescents in Quebec are more likely than the national average to have attempted to buy cigarettes. Among 10- to 14-year-olds, Quebec and British Columbia have the highest percentages of having gone to a store to buy cigarettes (Fig. 8-D).

Adolescents in Saskatchewan, Alberta, and Prince Edward Island are somewhat less likely to have gone to a store to buy cigarettes.

Asked for Age When Buying Cigarettes

Girls and boys are equally likely to have ever been asked their age if they have tried to buy cigarettes (45%), and this does not vary consistently by age (Table 8-4). People between the ages 13 and 17 are most likely to say that someone had refused to sell them cigarettes they were trying to buy (Table 8-4), but this is still barely more than half of these young people.

Provincially, there are no striking differences in terms of the percentages of 10- to 14-year-olds who say they have ever been asked their age when attempting to buy cigarettes or who have ever been refused. In no province have more than half of the 10- to 14-year-olds who had ever tried to buy cigarettes in a store been refused (Table 8-5).

Overall, the percentage who have been asked their age does not vary substantially according to one's usual source of cigarettes, with the exception of those who usually get their cigarettes from another person. Of those aged 15-19 who smoked in the 30 days preceding the survey and have ever tried to buy cigarettes, 67% have ever been asked their age; 47% of this same group have been asked their age if they usually obtained cigarettes through another person (data not shown).

Quantity Purchased

Young people who had smoked in the 30 days before the survey were asked how many cigarettes they usually buy at one time. The most common quantity in which young people purchase cigarettes is in packages of 25 or more (Table 8-6). Less than 1% of all 10- to 19-year-olds say they usually buy cigarettes in packages of five cigarettes or 15 cigarettes (so-called "kiddie packs"). As this percentage is so small, these individuals are included with those people who usually do not buy cigarettes in packages and the very small number who buy cigarettes in any quantity other than packages (Tables 8-6 to 8-8). The sale of single cigarettes is of concern because, by making cigarettes more affordable, it may be easier for young people to get started on smoking. Overall, 29% of people aged 10-19 occasionally buy single cigarettes (Table 8-6).

Boys and girls usually buy in similar quantities, but there are significant age differences in the usual quantity of cigarettes purchased (Table 8-6). Although the majority of adolescents and teens at all ages are most likely to buy packages of 25, those aged 10-12 are somewhat less likely to buy cigarettes in full packages than older teens. Buying single cigarettes is clearly more popular among younger children than older adolescents. About half of 10- to 12-year-old cigarette purchasers occasionally buy singles, compared to only 7% (moderate sampling variability) of 18- to 19-year-old purchasers.

Provincial differences are evident in the usual size of package bought. At all ages, packages of 20 cigarettes are significantly more popular than packages of 25 in Newfoundland and British Columbia. Quebec also stands out in terms of the percentage of 10- to 14-year-olds buying packages of 25. While, nationally, only 49% of smokers aged 10-14 usually buy cigarettes in packs of 25, 70% of Quebec smokers this age do. Young people in Ontario are less likely to report buying single cigarettes than those from the other provinces; young people are somewhat more likely to report buying single cigarettes in Manitoba, Alberta, Nova Scotia, and Newfoundland, although there is substantial sampling variability in these provincial comparisons (Table 8-7).

Not surprisingly, current daily smokers tend to buy cigarettes in larger quantities (79% of daily smokers usually purchase 25-cigarette packs), but so do current non-daily smokers (Table 8-8). In contrast, those beginning to smoke are most likely to buy cigarettes in smaller quantities. Only a third of beginning smokers aged 10-14 buy their cigarettes in packs. Buying single cigarettes is not restricted to beginning smokers and current non-daily smokers. Sixty-one percent of current daily smokers aged 10-14 occasionally buy singles – 14% for current daily smokers aged 15-19.

Some association exists between the quantity of cigarettes usually purchased and the usual place a person obtains cigarettes. The most commonly purchased quantity is packages of 25, and this is true wherever someone usually obtains their cigarettes (data not shown). However, people who usually buy in small quantities are more likely to get them from non-retail sources (i.e., from another person).

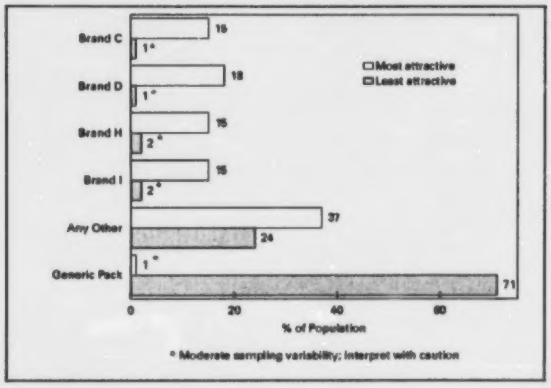
Brand Preference

About 80% of current smokers and those beginning to smoke said they usually smoke the same brand of cigarettes (Table 8-9), and brand preference is

Table 8-A
Describe Cigarettes Usually Bought as "Light" or "Extra Mild," Current Smokers Aged 15-19 Who Usually Smoke Same Brand, Canada, 1994

	Pop. Est. ('000)	% Usually Smoke "Light" or "Extra Mild" Cigarettes
Males, 15-19	**191**	**38**
15-17	86	33
18-19	105	42
Females, 15-19	**199**	**51**
15-17	105	51
18-19	94	51

Figure 8-E
Attractiveness of Masked Packages of Name Brands and of Generic Package, Age 10-14, Canada, 1994



clustered in very few brands. This is equally true of smokers aged 10-14 and 15-19. Not surprisingly, current daily smokers (91%) are most likely to have a usual brand (data not shown). Sex differences are not marked, although there is a slight tendency for the percentage with a usual brand to increase with age for girls but decrease for boys (Table 8-9).

Of those who usually smoke the same brand, 93% named one of the three most popular brands as their usual one. When the usual brand smoked is examined province by province, there is some variation in market share, but the three most common brands are most popular in every province (Table 8-10).

Type of Cigarettes Usually Bought

When smokers aged 15-19 were asked to describe the type of cigarettes they usually smoke, 38% said "regular" and 43% said "king size" (data not shown). As indicated under Methods, this was an open-ended question, and respondents gave varying amounts of information about their usual brand. Forty-five percent described the cigarettes they smoked as "filtered" cigarettes, and 45% said either "light" or "extra mild"; in all, 17% reported some other descriptor. Adolescent girls are somewhat more likely to smoke "king size" cigarettes (data not shown) and are more likely to describe the cigarettes they smoke as "light" or "extra mild" (Table 8-A).

By region, "light" and "extra mild" cigarettes were somewhat more popular in Ontario and the Prairie provinces and less popular in Quebec. "Light" and "mild" cigarettes were smoked only slightly more often by current non-daily smokers and by those beginning to smoke (50%) than by current daily smokers (43%; data not shown).

Marketing and Brands

As discussed under Methods, students were shown cigarette packages (without brand names) and asked to match the pictures to brand names. Adolescents 10-14 years of age are quite capable of recognizing a number of distinct cigarette brands from the design and colour of the packaging alone. Only 5% of children can not correctly identify any of the cigarette brands shown (Table 8-11). One in four (25%) correctly identify one brand, 35% identify two or three brands, and 34% correctly identify a minimum of four brands.

Not surprisingly, the current smokers in this group can identify more brands than those who have never smoked. Brand recognition is similar for boys and girls and across all provinces (data not shown).

Brand Found Most Attractive

There is no clear winner in terms of which of the 10 masked packages shown to students is judged to be "most attractive." Forty-five percent of youth aged 10-14 rate one of the same three most popular brands as the most attractive of the packages presented. The most popular design was selected by 19%. There is clear consensus about one brand being the least attractive, however, as it was selected as such by 71% of children aged 10-14 (Fig. 8-E). This least attractive

brand is the example of generic packaging – not on the market, but proposed as a measure to prevent smoking among children.

Knowledge of Sponsorship Advertisements

One half of all youth reported they had seen an ad for a sports or cultural event sponsored by a tobacco company (50%); boys are slightly more likely than girls to have seen such an ad (57% of boys aged 10-19 compared to 43% of girls) (Table 8-12).

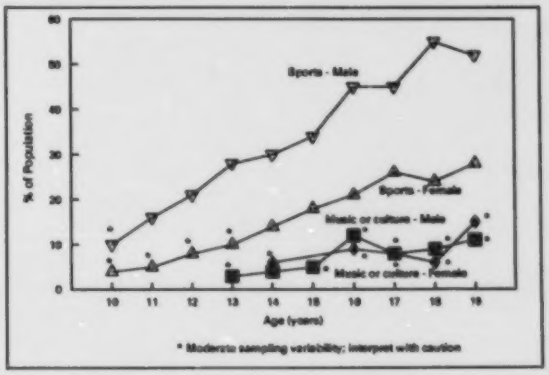
Current smokers (59%) and former smokers (66%) are more likely to report seeing such sponsorship ads than those who have not smoked as many as 100 cigarettes in their lifetimes (35%; data not shown). Young people in Newfoundland (39%) and the other Atlantic provinces (Prince Edward Island 44%; Nova Scotia 46%; and New Brunswick 42%) are somewhat less likely than the national average (50%) to have seen such ads (data not shown).

When those who had seen these ads were asked to name the tobacco corporation whose advertising they had seen, the three most commonly recalled corporations matched with the names of the three brands most often named as the ones usually smoked (data not shown).

The most common places for young people to report seeing advertising for tobacco company-sponsored events are on television (63% of those who had seen such advertising), billboards (48%), and magazines or newspapers (44%). A substantial number also reported seeing them in stores (27%) and in buses or on bus shelters (25%). For each of the various locations, males and females are about equally likely to report seeing this type of advertising of a sponsored event (Table 8-12). The largest age differences are found for store displays and signs and bus shelters, for which younger children are more likely to have seen the advertising. There is no association between smoking status and where this type of advertising has been seen. When compared to residents of other provinces, people in Quebec have seen proportionately fewer ads in print materials; residents of Newfoundland and Prince Edward Island were somewhat more likely to have seen these ads on television (data not shown).

When the type of event is considered, people who know of any events sponsored by tobacco corporations are more likely to correctly recall sporting events and their corporate sponsors than music or cultural events (Table 8-13). Sixty-three percent of people aged 10-19

Figure 8-F
Ability to Name One or More Sponsored Events with Corporate Sponsor, by Type of Event, Age, and Sex, Canada, 1994



who know of any events sponsored by a tobacco corporation can correctly identify at least one specific sporting event along with its corporate sponsor by name. In contrast, just 14% of those who know of any events sponsored by a tobacco corporation can correctly match a music or cultural event to its corporate sponsor.

Sponsored sporting events are more likely to be reported than other events, but this also varies by age and sex. Figure 8-F shows the percentage of the entire population at each age who can identify a complete match between a sporting event and its tobacco corporation sponsor as opposed to not recalling a sporting event, recalling no such events, or not able to say if they recalled such an event. Roughly one third of all young men aged 13-15 could correctly name a specific sports event by the name of a tobacco corporation sponsor; by the end of the teen years, more than half could. Young women were also more likely to have specific recall of sports events than of music or cultural events. For either sex, there was no real trend with age for greater recall of music or cultural events.

Discussion

Overview of Findings

Source of Cigarettes and Purchasing Behaviour

Results of the YSS provide clear evidence of how easy it is for young Canadians to buy cigarettes. Access to tobacco for minors is not limited to retail outlets but includes indirect sources as well (i.e., through other people). Although smokers less than 14 years old were most likely to get cigarettes from another person, by

the time one turns 16 it is most likely that the usual source of cigarettes is a corner store or gas station. Young people are not likely to be asked their age when they try to buy cigarettes in a retail store.

As a general rule, young people buy cigarettes in large quantities (full packages of 20 and 25). This is true for people aged 15-19 in all provinces except Newfoundland and British Columbia. In Quebec, 10- to 14-year-olds are more likely than elsewhere to buy large quantities. It is also clear that single cigarettes are very often purchased from another person rather than a retail outlet.

Brand Awareness, Preference, and Brand-related Marketing

Even the youngest adolescents are aware of tobacco company brand names and tobacco corporation promotional activities and can identify tobacco packages by brand name. The findings presented in this chapter also illustrate the success of the three largest Canadian tobacco companies in terms of the extent of adolescents' awareness and knowledge of their brands through promotional activities and the degree to which young people are exposed to this promotion, whether or not they are intentionally targeted.

Ninety-five percent of students aged 10-14 can name at least one brand of cigarettes and correctly match this to the colour and graphical features of the corresponding packaging. About one half of people aged 10-19 can remember seeing a specific ad for a sports, music, or cultural event sponsored by a tobacco company. Sports events are most often recalled by young people, and these ads are most likely seen on television, billboards, and magazines.

The cigarette brand names corresponding to the tobacco corporations most often recalled from sponsorship activities and deemed to have the most attractive packages are also the preferred brands and the brands usually smoked by Canadians under age 20. Thus, despite tobacco industry claims that they do not market to young non-smokers, it is clear that their marketing is well organized, highly visible, and effective with young Canadians.

It is not possible to compare these results to earlier Canadian surveys, as these questions have never before been asked in Canada. These results make it clear that such questions need to be repeated in future surveys.

Implications for Regulation and Legislation

Sales to Minors

It has been illegal for a retailer to sell cigarettes to anyone under age 16 since the *Tobacco Restraint Act* of 1908. The *Tobacco Sales to Young Persons Act*, which came into effect early in 1994, made it illegal across the country to sell or provide tobacco products to a person under age 18, although some provinces had extended the age restriction earlier. Manitoba moved to age 18 in 1990; New Brunswick and Newfoundland to 19 in 1993; Prince Edward Island to 19 in 1991; and British Columbia and Nova Scotia to 19 in 1994. Ontario moved to 19 in 1995.

The findings of the YSS correspond with other evidence showing that it is still far too easy for Canadian minors to obtain cigarettes. [1,9] For example, one recent study showed that 54% of retailers would sell cigarettes to a minor. [1] In Chapter 3, it was observed that 33% of 10- to 14-year-olds and 88% of 15- to 19-year-olds felt that it would be easy for them to get cigarettes if they wanted. Canadian youth may find it somewhat less easy to obtain cigarettes than American young people. Data from the Monitoring the Future Study conducted by the University of Michigan show that more than three quarters of 8th graders say cigarettes are "fairly easy" or "very easy" to obtain. [10,17,18] In the 1993 Teenage Attitudes and Practices Survey, 62% of young U.S. smokers aged 12-17 reported buying their own cigarettes. [3]

Greater restrictions on the sale of tobacco to minors have been identified in Canada and the United States as an important strategy to prevent the establishment of smoking among young people. [8,19] Restricting access to cigarettes may play an important role in prevention throughout the process of becoming and remaining a smoker. [19,20] Keeping cigarettes out of the hands of children may reduce experimentation. Reduced availability may slow or inhibit the onset of heavier and more regular smoking and increase the likelihood of cessation. It is noteworthy that the earliest onset of smoking occurs in Quebec (Fig. 3-H), which also has the easiest access to cigarettes in corner stores (Table 8-3). Both findings may reflect cultural differences, where smoking among young people is more widely tolerated.

While restrictions on sales to minors already exist in all provinces, achieving full compliance remains the challenge. There are a number of measures that may be taken on a national or provincial basis to increase compliance with sales-to-minors regulations. Research

on deterrence generally indicates that compliance with regulations is greatest when the consequences of non-compliance are severe, swift, and certain. [7,15] Increases in the severity of the consequences for selling to minors may increase compliance, but these changes may have a negligible impact if the retailer is unaware of the penalty or convinced that charges are unlikely to be laid. It has been observed in Canada and the United States that court costs and delays have made police reluctant to act on complaints. Legislators may be reluctant to enact legislation seen as potentially harmful to businesses. Therefore, some provinces have moved in favour of fines and other deterrents that do not require the use of the criminal courts; this reduces barriers to laying charges and ensures that fines are applied swiftly, so that retailers see and hear evidence of enforcement activities. Some municipalities have also created conditions on retail licences such that a retailer who persistently sells to minors can lose the privilege of selling tobacco.

Other approaches may increase the likelihood of voluntary compliance with the regulations. These include mandatory signage – reminding the retailer of the law, but also letting the purchaser and others know about the restriction and possibly discouraging purchase attempts. Indeed, research has shown that retail outlets without a warning sign are almost twice as likely to sell cigarettes to minors. [5] It has been suggested that this may be because the presence of a sign gives the operators an excuse to ask customers for identification. Another measure is aligning tobacco sales-to-minors legislation with the legal age to purchase alcohol, which would allow tobacco retailers to request provincial photo-identification as proof of age.

Another type of legislative approach could be seen as reducing the demand for cigarettes at the point of sale – that is, reducing influences on the potential purchaser within the retail setting. Health Canada [8] has proposed a number of measures to reduce the influences on cigarette purchase at point of sale, including the elimination of all promotional materials from retail stores, placing the product out of sight, and eliminating countertop displays.

Effective measures have already been taken to reduce access to tobacco for minors through sources other than regular retailers. Results of the YSS indicate that vending machines are not now a significant source of cigarettes for young people after a national ban was placed on cigarette vending machines in unmonitored areas with the *Tobacco Sales to Young Persons Act*.

Product Regulation

Greater restrictions on the way tobacco products are manufactured, labelled, packaged, and sold could have beneficial effects. Naming cigarettes "light," "mild," or "extra mild" gives them the semblance of being less harmful [19,21] and may make experimenters more likely to try them. Smokers may switch to low-tar brands in the mistaken belief that this reduces their risk of health problems. Misleading labels should be banned by legislative means, as "light" cigarettes are not safe cigarettes. [11,12] It is unclear whether young girls are more readily persuaded by this kind of labelling, but the YSS did find them to be more likely than boys to use "light" or "mild" brands.

Another example of product control is regulation of the number of cigarettes sold in packages and separating cigarettes for sale. In 1994, the federal government passed legislation prohibiting the sale of cigarettes in small packages (packages less than 20 cigarettes, or so-called "kiddie" packs) in an effort to reduce levels of experimentation. In the YSS, few older adolescents said they ever buy single cigarettes. Single cigarettes were more often bought by current non-daily smokers and those beginning to smoke, providing indirect evidence that the availability of single cigarettes might be used as a way of easing into smoking, both by lessening the cost and by increasing the likelihood of experimentation. However, the fact that single cigarettes are most often purchased from another person, and not a retailer, illustrates a limitation to this type of control measure.

It should also be noted that smokers are four times as likely to purchase a pack of 25 as a pack of 20 cigarettes. The "pack-a-day" smoker who buys cigarettes in 25-cigarette packages is consuming 25% more tobacco than one buying cigarettes in packages of 20 and 66% more than in a 15-pack. Package size may not be particularly important when friends share cigarettes, but large-size packages may encourage sharing and experimentation.

Promotion and Marketing

Research has shown that young people are susceptible to advertising for tobacco products, possibly more so than adults. [14] Children become sensitive to the adult-oriented positive imagery associated with tobacco through lifestyle-type advertisements between the ages of 10 and 14. [2] Exposure to advertisements is

associated with more positive beliefs about smoking and a greater chance of smoking or becoming a smoker.[16,19]

Before the Supreme Court rendered its decision ruling that a total ban on advertising was contrary to the Canadian Charter in 1995, the Canadian tobacco industry had been involved in a number of less direct marketing activities. The findings of the YSS and similar research conducted in Canada around this time offer a unique opportunity to examine the impact of specific types of marketing activity. The young people who participated in the YSS had not been exposed to direct advertising of Canadian cigarettes (other than in some instances as small children). The *Tobacco Products Control Act*, which banned advertising, was introduced in 1987 and implemented in 1989. Data collection for the YSS was completed before tobacco advertisements reappeared in 1996.

In spite of the lack of direct advertising, the vast majority of young people who participated in the YSS were able to correctly identify the visual characteristics of cigarette packages (with the name removed) and match these to cigarette brand names, even in some cases where the package design had been altered. Similarly, many of the youth could name the corporations (with a tobacco brand name as part of the corporate name) who had advertised to promote sports and cultural events of which they were sponsors.

In this respect, the YSS confirms the more detailed findings of an Expert Panel Report to Health Canada. [6] The Expert Panel Report showed that the colour and design of cigarette packages conjured up positive imagery that was specific to brand names and that corresponded to the type of promotional activities undertaken by the corresponding tobacco brand name corporation. This research also showed that young people perceived sponsorship activities to be a form of advertising and one that links corporation names with specific positive images such as sports or fashion. The juxtaposition of a corporate name with positive imagery is what is referred to as "lifestyle advertising," which is a powerful marketing tool. [13] The desirability of the lifestyle portrayed is transferred to the product or company name.

Young people also do not appear to be naive about the fact that sponsorship is a promotional activity for the corporation. In Chapter 6, it was shown that a sizeable majority of Canadian youth (ages 15-19) believe such ads are used by tobacco corporations to promote their public image. The majority of people surveyed in the YSS believed that billboards advertising such a sponsored event encourage people to smoke and advertise a brand of cigarettes.

Effective control of sponsorship activities of tobacco corporations may have a beneficial effect in reducing the uptake of smoking among young people. Promotional materials for sponsored events, particularly paraphernalia and giveaways, may have more of an appeal to young people than regular advertisements and are likely to get into the hands of children.[4]

Three brand families of cigarettes repeatedly stand out as the most popular. The same three brands top the list in terms of brand usually smoked, the brand most often recognized, and the brand most often recalled from corporate sponsorships. This would indicate that the marketing activities carried out by a small number of tobacco corporations have clearly reached young people and influenced their behaviour, at least as far as brand loyalty is concerned. Goldberg et al. [6] also observed that two tobacco brands rated very highly in terms of youth awareness of the product, the imagery evoked in the corporation's marketing strategies (i.e., sporting or fashion and lifestyle), and the visual elements of the packaging (i.e., colour and graphical design), which link the marketing efforts to the product itself. This is consistent with U.S. findings that show that one or two tobacco companies will tend to hold a large portion of the market of young people in a given area and that product preference is related to the extent of marketing activities. [14,19] This is especially important, since the tobacco companies insist that they do not market to youth.

A number of measures have been proposed to reduce the exposure of young people to all kinds of promotional activities of the tobacco industry. [8] The first priority is to ensure that youth are protected from inducements to smoke, such as advertisements and promotional activities. Other proposed measures include the prohibition of sponsorship advertising in places where tobacco is sold. One part of this strategy is to remove all elements of positive imagery from the point of purchase. The visual features of the package itself (i.e., colour and design) are a form of marketing that links the product to other promotions. Therefore, it is proposed that counter displays be banned and that the packages be stored out of view. Further, that the majority of youth in the YSS who have seen sponsorship advertisements have seen them on

television lends support to the government's proposal to prohibit such sponsorship promotion on broadcast media.[8]

Finally, it has been proposed that cigarettes be sold only in generic packages of a uniform colour and bearing only the brand name, contents information, and required government warnings.[6,8] A plain package cannot be linked to the positive imagery promoted by direct or indirect means and has been demonstrated to hold less appeal to young people.[5] The findings in this chapter provide clear support for this measure.

Other promotional activities that should be prohibited include those that have a particular appeal to young people, including product endorsements by individuals who are influential to young people (such as sports heros) and symbols of childhood (such as cartoon characters). Experience in the United States has shown that giveaways (t-shirts, caps, and recreational equipment) are particularly effective with young people. In Canada, until the Supreme Court's decision, these activities were prohibited under the *Tobacco Products Control Act*. Another priority is to deal with this issue.

Implications for Education and Message Promotion

Retailers and the general public need to understand both the law and the purpose behind the law when it comes to restrictions on sales to minors. In addition, both need to be made aware of how the regulations are enforced. Concerned members of the general public may be more likely to take action against sales to minors if they are aware of the regulations and the process for filing complaints.

Information about enforcement activities should be made public. This may have a number of positive results. First, demonstrations that the public supports sales-to-minors regulations may increase voluntary compliance.[5,19] Many retailers will be motivated to maintain a positive public image incompatible with being identified as a source of cigarettes for children. Awareness of cases where fines have been laid may lead to the belief that one is likely to be fined or charged.

For beginning smokers and those under the age of 15, however, the major source of cigarettes is from another person. Consequently, total or near total compliance by retailers does not guarantee that youth will not take up smoking. In order to effectively deal with this problem, it is important to design education programs that encourage smokers not to provide cigarettes to underage or beginning smokers. This becomes the primary message once the desired level of retailer compliance is achieved.

Education campaigns may be used to good effect to inoculate the public against the marketing strategies of tobacco corporations. Examples of this include alerting the public to the fact that sponsorship promotes the corporate sponsor as well as the event or program being supported. Another example is attempting to dispel the misconception that "light" cigarettes are less harmful than cigarettes by any other name.

Implications for Future Monitoring and Further Research

The information provided by the YSS on access to tobacco by minors is only a small part of that needed to track compliance with restrictions on tobacco sales. Because of the way the questions were asked (i.e., in terms of lifetime experience rather than in, say, the year preceding the survey), it is somewhat difficult to monitor to what extent young people are being turned away when they try to buy cigarettes or to produce age-specific rates in asking for proof of age.

Other research methods complete the picture. One of the best ways to demonstrate levels of compliance makes use of planned attempts to purchase cigarettes by minors acting on the authority of researchers or a health agency. One recent study across Canada demonstrated that compliance with sales-to-minors regulations was low and varied greatly.[2] The complexity of the retail environment and large regional differences make it difficult to effectively monitor trends in sales to minors or the impact of measures to improve compliance. Provincial and local governments and their health agencies should be encouraged to use consistent methods to track compliance and disseminate their findings. If conducted on a regular basis, these monitoring studies would allow one to observe how effective legislation is at protecting young people from addiction to nicotine and evaluate efforts to increase compliance. As well, such studies may themselves influence compliance.[19] The 1994 U.S. Surgeon General's report on *Preventing Tobacco Use Among Young People*[19] summarizes a number of U.S. studies that show that publishing information on the rates of compliance can reduce the rate of sales to

minors in follow-up studies, although it is not at all clear that such efforts will have a long-lasting impact. Similar marked changes in retailer compliance have been demonstrated in Canada, as well. [5]

Corner stores are of pivotal importance as a source of cigarettes for young people. No other retail source is more important than corner stores. Further research is needed to understand the market forces that encourage retailers to sell to minors and the predictors of compliance with the law. It is extremely important to have research that evaluates the effectiveness of different legislative or educational interventions aimed at improving compliance. Gas stations, too, deserve attention, as they are another important source of cigarettes, particularly in western Canada. A number of features may make gas stations particularly appealing as a source of cigarettes. For example, gas stations may afford greater privacy for the retailer or underage purchaser, as there are few other customers around.

There are some limitations to the degree to which the YSS is a good vehicle to study purchase behaviour, and some modifications would enhance future monitoring. For example, underage smokers may use multiple sources for cigarettes and may have a variable rate of success when trying to purchase. The YSS was able to ask only a few questions about attempts to buy cigarettes, which may not capture this complexity. As well, people were asked if they had ever been asked their age when trying to buy cigarettes, which makes it somewhat difficult to determine the frequency of being turned away at any age. Regardless, it is clear that there is no guarantee a young smoker will be asked to show proof of legal age when buying cigarettes or be turned away. Even among 10- to 12-year-olds, 18% had gone to a store to buy cigarettes, and, of these, only 42% said they had ever been asked their age.

The findings of the YSS also show that young people commonly buy cigarettes in large quantities, with half of 10- to 14-year-olds and 70% of 15- to 19-year-olds buying packages of 25. The YSS does not provide information to explain why packages of 20 cigarettes (as opposed to packages of 25) were so much more popular in Newfoundland and British Columbia than in other provinces or why fewer smokers in Ontario buy single cigarettes. These issues deserve further study.

The YSS provides new information about the purchase of single cigarettes. Being able to buy small quantities of cigarettes is believed to encourage smoking among young and novice smokers, as price and other barriers are removed. However, the majority of those who occasionally buy single cigarettes usually buy them from another person. Therefore, the behaviour being captured may simply be sharing cigarettes – dividing up the package away from the retail store or paying back a friend for a few cigarettes. It is important to distinguish between retail and other sources of cigarettes sold outside of packages if one is interested in tracking policies on retail practices such as separating cigarettes from packages.

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Table 8-1
Usual Place Cigarettes Obtained, by Sex and Age, Current and Beginning Smokers, Canada, 1994

		Where Do You Usually Get Cigarettes? (%)			
	Pop. Est. ('000)	Corner Store	Gas Station	Other Store	From Another Person
Total, 10-19	**886**	**47**	**12**	**8**	**33**
10-14	310	29	6*	6*	59
15-19	576	57	15	9	19
10-12	95	23	#	8*	66
13-14	215	31	8*	6*	56
15-17	304	57	10*	8*	26
18-19	271	57	20	11*	12*
Males, 10-19	**427**	**49**	**13**	**8***	**32**
10-14	145	31	6*	8*	56
15-19	282	59	16	5*	20
10-12	51	24*	#	#	63
13-14	94	34	7*	8*	51
15-17	136	59	9*	#	27
18-19	146	58	23	#	14*
Females, 10-19	**459**	**45**	**11**	**11**	**33**
10-14	165	27	7*	5*	62
15-19	294	55	13	13	18
10-12	44	21*	#	#	69
13-14	121	29	8*	#	59
15-17	169	55	11*	10*	25
18-19	125	56	17*	18*	9*

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-2
Usual Place Cigarettes Obtained, by Type of Smoker and Age, Current and Beginning Smokers, Canada, 1994

		Where Do You Usually Get Cigarettes? (%)			
	Pop. Est. ('000)	Corner Store	Gas Station	From Other Store	Another Person
Total, 10-19	**886**	**47**	**12**	**8**	**33**
10-14	310	29	6*	6*	59
15-19	576	57	15	9	19
Current Daily Smokers, 10-19	**387**	**61**	**17**	**12**	**10**
10-14	46	47	#	#	34*
15-19	341	63	18	13	7*
Current Non-daily Smokers, 10-19	**193**	**54**	**15**	**6***	**#**
10-14	82	41	11*	10*	38
15-19	111	63	18*	#	16*
Beginning Smokers, 10-19	**256**	**25**	**#**	**4***	**68**
10-14	138	15*	#	#	79
15-19	118	36	#	#	56

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-3
Usual Place Cigarettes Obtained, by Province and Age, Current and Beginning Smokers, Canada, 1994

		Where Do You Usually Get Cigarettes? (%)			
	Pop. Est. ('000)	Corner Store	Gas Station	Other Store	From Another Person
Canada, 10-19	**886**	**47**	**12**	**8**	**33**
10-14	310	29	6*	6*	59
15-19	579	57	15	9	19
Newfoundland, 10-19	**25**	**40**	**#**	**13**	**42**
10-14	8	#	#	#	84
15-19	17	55	#	15*	23
Prince Edward Island, 10-19	**5**	**42**	**12**	**#**	**39**
10-14	2	#	#	#	69
15-19	3	56	#	#	24
Nova Scotia, 10-19	**28**	**49**	**#**	**9***	**39**
10-14	10	21*	#	#	68
15-19	19	62	#	#	24
New Brunswick, 10-19	**25**	**38**	**8***	**12**	**43**
10-14	8	#	#	#	72
15-19	17	50	#	#	30
Quebec, 10-19	**264**	**64**	**4***	**8***	**24**
10-14	106	51	#	#	37
15-19	158	72	#	10*	16*
Ontario, 10-19	**281**	**50**	**11***	**#**	**31**
10-14	86	#	#	#	69
15-19	195	63	14*	#	15*
Manitoba, 10-19	**39**	**26**	**28**	**5***	**42**
10-14	12	16*	#	#	70
15-19	28	30	36	#	30
Saskatchewan, 10-19	**33**	**24**	**19**	**12**	**45**
10-14	13	#	#	#	74
15-19	20	35	24	14*	27
Alberta, 10-19	**85**	**26**	**22**	**9***	**44**
10-14	31	#	#	#	76
15-19	54	36	30	#	25
British Columbia, 10-19	**102**	**34**	**21**	**10***	**36**
10-14	36	22*	#	#	64
15-19	66	40	27	12*	21*

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-4
Tried to Buy Cigarettes, Been Asked Their Age, or Been Refused Cigarettes, by Sex and Age, Canada, 1994

	Ever Gone to Buy Cigarettes?		Among Those Who Have Ever Gone to Buy Cigarettes ...			
			Ever Asked Age?		Ever Been Refused When Trying to Buy Cigarettes?	
	Pop. Est. ('000)	% Yes	Pop. Est. ('000)	% Yes	Pop. Est. ('000)	% Yes
Total, 10-19	**3,881**	**41**	**1,570**	**48**	**1,570**	**41**
10-14	1,949	24	462	48	462	51
15-19	1,932	57	1,108	48	1,108	37
10-12	1,166	18	206	41	206	42
13-14	783	33	256	54	256	56
15-17	1,149	48	555	52	555	52
18-19	783	71	553	45	553	23
Males, 10-19	**1,986**	**41**	**806**	**47**	**806**	**41**
10-14	997	24	234	47	234	50
15-19	989	58	572	47	572	38
10-12	596	18	109	41	109	45
13-14	401	31	125	52	125	54
15-17	589	48	281	52	281	52
18-19	400	73	291	42	291	24
Females, 10-19	**1,896**	**40**	**764**	**49**	**764**	**41**
10-14	953	24	228	49	228	51
15-19	943	57	536	49	536	37
10-12	571	17	97	41	97	39
13-14	382	34	131	55	131	59
15-17	560	49	275	51	275	51
18-19	383	68	262	47	262	22

Table 8-5
Tried to Buy Cigarettes, Been Asked Their Age, or Been Refused Cigarettes, by Province and Age, Canada, 1994

	Ever Gone to Buy Cigarettes?		Among Those Who Have Ever Gone to Buy Cigarettes ... Ever Asked Age?		Ever Been Refused When Trying to Buy Cigarettes?	
	Pop. Est. ('000)	% Yes	Pop. Est. ('000)	% Yes	Pop. Est. ('000)	% Yes
Canada, 10-19	**3,881**	**41**	**1,570**	**48**	**1,570**	**41**
10-14	1,949	24	462	48	462	51
15-19	1,932	57	1,108	48	1,108	37
Newfoundland, 10-19	**83**	**39**	**37**	**48**	**37**	**48**
10-14	45	19	9	45	9	51
15-19	48	59	28	49	28	47
Prince Edward Island, 10-19	**20**	**34**	**7**	**49**	**7**	**43**
10-14	10	14	1	38	1	44
15-19	10	52	5	52	5	43
Nova Scotia, 10-19	**126**	**39**	**49**	**53**	**49**	**47**
10-14	62	22	13	47	13	47
15-19	64	56	35	56	35	47
New Brunswick, 10-19	**107**	**37**	**39**	**56**	**39**	**52**
10-14	52	21	11	47	11	56
15-19	55	52	28	59	28	50
Quebec, 10-19	**968**	**53**	**514**	**39**	**514**	**36**
10-14	478	35	169	50	169	54
15-19	487	71	345	33	345	27
Ontario, 10-19	**1,415**	**37**	**524**	**53**	**524**	**58**
10-14	712	21	149	47	149	47
15-19	704	53	374	55	374	40
Manitoba, 10-19	**150**	**36**	**54**	**49**	**54**	**40**
10-14	75	17	13	42	13	48
15-19	75	55	41	51	41	38
Saskatchewan, 10-19	**148**	**36**	**53**	**46**	**53**	**38**
10-14	77	21	16	45	16	44
15-19	71	51	37	47	37	33
Alberta, 10-19	**387**	**32**	**123**	**56**	**123**	**42**
10-14	202	16	31	48	31	51
15-19	185	50	92	59	92	39
British Columbia, 10-19	**470**	**37**	**172**	**54**	**172**	**50**
10-14	238	21	49	48	49	50
15-19	232	53	123	56	123	50

Table 8-6
Quantity of Cigarettes Usually Purchased and Purchase of Single Cigarettes, by Sex and Age, Current and Beginning Smokers, Canada, 1994

		What Pack Size Do You Usually Buy?			
	Pop. Est. ('000)	Not in Packs/ 1-15 Cigarettes	Twenties	25+	Do You Sometimes Buy Single Cigarettes? (% yes)
Total, 10-19	**886**	**22**	**15**	**63**	**29**
10-14	310	37	15	49	54
15-19	576	15	15	70	15
10-12	95	47	10*	44	57
13-14	215	32	17	51	53
15-17	304	15	12	73	23
18-19	271	15	19	67	7*
Males, 10-19	**427**	**21**	**16**	**63**	**28**
10-14	145	38	15*	50	55
15-19	282	14	16	70	15
10-12	51	45	12*	43	53
13-14	94	31	16*	53	56
15-17	136	14*	11*	75	23
18-19	146	14*	21	65	7*
Females, 10-19	**459**	**23**	**14**	**63**	**30**
10-14	165	37	14	48	54
15-19	294	16	4	70	16
10-12	44	48	#	45	62
13-14	121	33	17*	50	51
15-17	169	16	13	71	22
18-19	125	15*	16*	69	7*

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-7
Quantity of Cigarettes Usually Purchased and Purchase of Single Cigarettes, by Province and Age, Current and Beginning Smokers, Canada, 1994

		What Pack Size Do You Usually Buy?			
	Pop. Est. ('000)	Not in Packs/ 1-15 Cigarettes	Twenties	25+	Do You Sometimes Buy Single Cigarettes? (% yes)
Canada, 10-19	**886**	**22**	**15**	**63**	**29**
10-14	310	37	15	49	54
15-19	576	15	15	70	15
Newfoundland, 10-19	**25**	**26**	**64**	**10***	**54***
10-14	8	38	40	21	90
15-19	17	20	75	#	38*
Prince Edward Island, 10-19	**5**	**23**	**#**	**76**	**#**
10-14	2	38	#	58	#
15-19	3	#	#	84	#
Nova Scotia, 10-19	**28**	**22**	**#**	**74**	**40***
10-14	10	38	#	58	67*
15-19	19	15*	#	82	#
New Brunswick, 10-19	**25**	**24**	**#**	**73**	**35***
10-14	8	41	#	55	60*
15-19	17	17	#	81	#
Quebec, 10-19	**264**	**22**	**#**	**76**	**30**
10-14	106	28	#	70	51
15-19	158	18	#	80	16*
Ontario, 10-19	**281**	**21***	**14***	**65**	**18**
10-14	86	46	#	33*	42
15-19	195	10*	#	80	#
Manitoba, 10-19	**39**	**26**	**#**	**72**	**40***
10-14	12	35	#	58	67
15-19	28	23	#	77	29*
Saskatchewan, 10-19	**33**	**30**	**#**	**67**	**35***
10-14	13	45	#	49	59*
15-19	20	21	#	78	#
Alberta, 10-19	**85**	**22**	**#**	**76**	**36**
10-14	31	40	#	58	64
15-19	54	13*	#	86	20*
British Columbia, 10-19	**102**	**20**	**67**	**12***	**32**
10-14	36	30	55	#	65
15-19	66	16*	73	11*	15*

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 8-8
Quantity of Cigarettes Usually Purchased and Purchase of Single Cigarettes, by Type of Smoker and Age, Current and Beginning Smokers, Canada, 1994

	Pop. Est. ('000)	What Pack Size Do You Usually Buy? Not in Packs/ 1-15 Cigarettes or Never Purchased	Twenties	25+	Do You Sometimes Buy Single Cigarettes? (% yes)
Total, 10-19[a]	**836**	**21**	**15**	**64**	**27**
10-14	265	36	14	50	52
15-19	570	15	15	70	15
Current Daily Smokers, 10-19	**387**	**3***	**18**	**79**	**20**
10-14	46	#	19*	80	61
15-19	341	4*	17	79	14
Current Non-daily Smokers, 10-19	**193**	**10***	**17**	**73**	**34**
10-14	82	9*	17*	74	59
15-19	111	11*	17*	73	16*
Beginning Smokers, 10-19	**256**	**59**	**10***	**31**	**32**
10-14	138	66	11*	23	45
15-19	118	52	9*	39	17*

a. Excludes those people for whom type of smoker was not known.

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-9
Brand Usually Smoked, by Sex and Age, Current and Beginning Smokers, Canada, 1994

			Brand Usually Smoked (%)				
	Pop. Est. ('000)	Do You Usually Smoke the Same Brand? (% yes)	No Usual Brand	Brand C	Brand H	Brand I	All Other Brands
Total, 10-19	**886**	**80**	**20**	**28**	**11**	**35**	**6**
10-14	310	81	20	28	13	30	9
15-19	576	80	20	28	10	37	5
10-12	95	81	20*	27	12*	27	14*
13-14	215	81	19	29	14	32	7*
15-17	304	78	22	29	10*	35	4*
18-19	271	81	19	27	9*	40	6*
Males, 10-19	**427**	**79**	**21**	**29**	**13**	**32**	**6***
10-14	145	82	18	27	17	27	11*
15-19	282	78	22	29	10*	34	4*
10-12	51	82	15*	27*	15*	28*	16*
13-14	94	81	20*	28	18*	27*	8*
15-17	136	78	22*	35	11*	29	#
18-19	146	77	23	24	10*	39	#
Females, 10-19	**459**	**81**	**19**	**28**	**9**	**38**	**6***
10-14	165	80	21	29	10*	33	7*
15-19	294	82	19	27	9*	40	5*
10-12	44	75	26*	28*	#	25*	#
13-14	121	81	19	29	10*	36	5*
15-17	169	78	22	25	9*	40	#
18-19	125	86	14*	30	9*	40	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-10
Brand Usually Smoked, by Province and Age, Current and Beginning Smokers, Canada, 1994

	Pop. Est. ('000)	Do You Usually Smoke the Same Brand? (% yes)	Brand Usually Smoked (%)				
			No Usual Brand	Brand C	Brand H	Brand I	All Other Brands
Canada, 10-19	**886**	**80**	**20**	**28**	**11**	**35**	**6**
10-14	310	81	20	28	13	30	9
15-19	576	80	20	28	10	37	5*
Newfoundland, 10-19	**25**	**83**	**17**	**38**	**6***	**28**	**11**
10-14	8	79	22	35	#	29	#
15-19	17	85	15*	40	#	27	12*
Prince Edward Island, 10-19	**5**	**79**	**21**	**65**	**#**	**#**	**#**
10-14	2	78	#	65	#	#	#
15-19	3	79	#	65	#	#	#
Nova Scotia, 10-19	**10**	**78**	**20**	**49**	**9***	**18**	**#**
10-14	28	80	23*	48	#	16*	#
15-19	19	82	19*	49	10*	18*	#
New Brunswick, 10-19	**25**	**81**	**19**	**42**	**11**	**21**	**7***
10-14	8	80	20*	33*	#	26*	#
15-19	17	82	18	46	11*	19	#
Quebec, 10-19	**264**	**79**	**22**	**21**	**24**	**27**	**7***
10-14	106	85	15*	24	29	24	8*
15-19	158	74	26	19	20	28	6*
Ontario, 10-19	**281**	**84**	**17***	**31**	**#**	**48**	**#**
10-14	86	79	#	29*	#	43	#
15-19	195	86	14*	31	#	50	#
Manitoba, 10-19	**39**	**81**	**20**	**30**	**#**	**41**	**#**
10-14	12	79	21*	30*	#	38	#
15-19	28	81	19*	30	#	42	#
Saskatchewan, 10-19	**33**	**74**	**26**	**29**	**#**	**30**	**11***
10-14	13	71	30	24	#	28	#
15-19	20	76	24	31	#	31	#
Alberta, 10-19	**85**	**77**	**23**	**31**	**8***	**30**	**7***
10-14	31	79	22*	30	#	28	#
15-19	54	76	24	32	#	31	#
British Columbia, 10-19	**102**	**78**	**22**	**23**	**10***	**34**	**12***
10-14	36	81	19*	30	#	26*	18*
15-19	66	76	24	19*	11*	38	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-11
Ability to Match Anonymous Cigarette Package Designs with Brand Names, by Sex and Age, Age 10-14, Canada, 1994

		Number of Correct Matches Between Picture of Cigarette Package Without Brand Name and Cigarette Brand Name (%)				
	Pop. Est. ('000)	0	1	2	3	4+
Total, 10-14	**1,949**	**5**	**25**	**19**	**16**	**34**
10-12	1,166	7	34	22	15	22
13-14	783	3*	14	16	17	50
Males, 10-14	**997**	**6**	**24**	**18**	**15**	**37**
10-12	596	7*	32	21	15	26
13-14	401	3*	14	15	16	52
Females, 10-14	**953**	**5***	**26**	**21**	**17**	**31**
10-12	571	7*	36	24	16	18
13-14	382	#	15	17	19	47

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 8-12
Recall of Advertisements for Tobacco Corporation-sponsored Events and Place Ads Were Seen, by Sex and Age, Canada, 1994

		Seen Ads for a Sponsored Event (%)			Seen Sponsorship Advertising by Location (% yes)				
	Pop. Est. ('000)	Yes	Don't Know	Pop. Est. ('000)	Billboards	Store Signs/ Displays	Buses/ Bus Shelters	Magazines/ Newspaper	Television
Total, 10-19	**3,881**	**50**	**10**	**1,870**	**48**	**27**	**25**	**44**	**63**
10-14	1,949	49	14	898	56	45	41	53	63
15-19	1,932	51	5	972	40	11	11	36	63
10-12	1,166	43	15	466	50	43	40	48	61
13-14	783	58	13	432	63	47	42	58	66
15-17	1,149	48	5	537	37	9	11	36	65
18-19	783	56	5	435	44	12	12	35	59
Males, 10-19	**1,986**	**57**	**8**	**1,096**	**49**	**28**	**25**	**44**	**64**
10-14	997	55	12	517	58	48	42	53	63
15-19	989	60	4	579	40	11	11	36	65
10-12	596	49	13	268	54	46	42	47	59
13-14	401	64	10	249	63	50	41	58	67
15-17	589	56	4*	322	36	11*	9*	35	70
18-19	400	65	4*	257	45	11*	12*	37	59
Females, 10-19	**1,896**	**43**	**11**	**774**	**47**	**26**	**26**	**44**	**61**
10-14	953	43	17	381	53	41	39	53	64
15-19	943	43	6	393	40	11	12	35	59
10-12	571	38	17	198	45	39	37	49	64
13-14	382	51	17	183	62	43	43	57	64
15-17	560	40	5*	215	38	8*	13*	37	59
18-19	383	47	6*	178	43	14*	12*	33	59

* Moderate sampling variability; interpret with caution

Table 8-13
Recall of Advertised Events Sponsored by Tobacco Corporations, by Type of Event, Sex, and Age, Canada, 1994

	Seen an Ad for a Tobacco Corporation-sponsored Event (%)			Among Those Who Have Seen an Ad for a Tobacco Corporation-sponsored Event ...		
	Pop. Est. ('000)	Yes	No	Pop. Est. ('000)	Recall One or More Correct Matches Between a Sponsored Sporting Event and Tobacco Company Sponsor (%)	Recall One or More Correct Matches Between a Sponsored Music or Cultural Event and Tobacco Company Sponsor (%)
Total, 10-19	**3,881**	**40**	**61**	**1,533**	**63**	**14**
10-14	1,949	24	76	472	60	11
15-19	1,932	55	45	1,061	64	16
10-12	1,166	19	81	222	55	8*
13-14	783	32	68	250	65	14
15-17	1,149	53	47	604	60	15
18-19	783	58	42	458	68	17
Males, 10-19	**1,986**	**49**	**51**	**977**	**68**	**12**
10-14	997	32	68	323	64	9
15-19	989	66	34	654	69	13
10-12	596	26	74	155	58	6*
13-14	401	42	58	167	69	13
15-17	589	62	38	368	66	11
18-19	400	72	28	287	74	15
Females, 10-19	**1,896**	**29**	**71**	**556**	**54**	**19**
10-14	953	16	84	149	52	14*
15-19	943	43	57	407	54	21
10-12	571	12	88	66	46	12*
13-14	382	22	78	83	56	16*
15-17	560	42	58	236	52	20
18-19	383	45	55	171	58	22

* Moderate sampling variability; interpret with caution

Chapter 9

Restrictions on Smoking

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Highlights

Methods

Results
Knowledge of Legal Age to Purchase Cigarettes
Reported School Smoking Restrictions
Compliance with School Rules
Perceived Impact of School Rules
School Rules and Smoking Behaviour
- Smoking Prevalence
- Cigarettes Smoked Daily
- Smoking Patterns

Workplace Smoking Restrictions
Perceived Impact of Workplace Smoking Restrictions
Workplace Smoking Restrictions and Smoking Behaviour
- Smoking Prevalence
- Cigarettes Smoked Daily
- Smoking Patterns

Discussion
Legal Purchase Age
School Smoking Restrictions
Workplace Smoking Restrictions
Implications for Regulation and Legislation
Implications for Education and Message Promotion
Implications for Future Monitoring and Further Research

References

Highlights

- Most young smokers know the legal age at which they can be sold cigarettes. Knowledge varies considerably by province and increases with age.

- Most students across Canada report some smoking restrictions in their school, but there is considerable variability in the level of restrictions by province.

- More than half of smokers report no impact of school rules on their smoking, and approximately 40% of students are unaware of existing school rules. Smokers with no school restrictions report that the potential impact of restrictions on smoking would be much greater than is actually reported by smokers exposed to school restrictions.

- Despite student perceptions of the impact of restrictions, school rules may affect student smoking. Students in schools with no rules report higher mean rates of daily smoking. However, students aged 15-19 smoke fewer cigarettes per day during the week than on weekends, regardless of school rules.

- Less than one third of youth with jobs are employed in workplaces with total bans on smoking.

- Smokers employed in workplaces with total bans have lower daily smoking rates than smokers with no restrictions. Smokers are more likely than non-smokers to be employed in workplaces with less restrictive smoking environments.

- Knowledge of minimum purchase age, awareness of smoking restrictions, compliance with school rules, and reported impact of school and work rules all increase with age.

- Few sex differences were found in relationships examined in this chapter.

- These findings suggest that restricting smoking at school and at work discourages smoking and may promote cessation while protecting non-smokers. Restrictions seem particularly influential with younger smokers, although their awareness of the rules needs to be raised.

Methods

In recent years, restrictions on smoking in workplaces and schools have been implemented in many jurisdictions across Canada. This chapter examines the relation between school and workplace smoking restrictions and smoking prevalence, smoking rates, and daily smoking patterns. Knowledge of legal purchase age and reported compliance with school smoking rules are also presented. While causal relations cannot be established on the basis of cross-sectional data, and while the findings presented here are based on self-reports by young people, this analysis provides further evidence of the effect of smoking restrictions on the smoking behaviour of adolescents.

Smoking behaviour is categorized as *current smokers* (those who have smoked at least 100 cigarettes in their lifetime and smoked during the 30 days before the survey), *former smokers* (those who have smoked at least 100 cigarettes but did not smoke during the 30 days preceding the survey), and *non-smokers* (those who have smoked fewer than 100 cigarettes in their lifetime). Chapter 2 provides a detailed description of these smoking categories.

Knowledge of the legal purchase age for cigarettes was measured by asking respondents, "According to the law in your province, how old does a person have to be in order to buy cigarettes?" (SS47, HH52, that is, School Survey Question 47, Household Survey Question 52; see Appendix A). These responses were then used to construct a new variable in which the responses are reclassified as correct or incorrect, using the correct purchase age for each province.

Respondents attending school (93% of the total sample) were asked to indicate if there was a rule at their school about where students are allowed to smoke (SS56a, HH65) and, if so, what type of school rules were in place (SS57, HH66). (Since these are self-reports of school rules, they may not accurately represent the existence and nature of the actual rules.) If the students were aware of any rules, they were asked if they felt that most students obeyed the school smoking rules (SS59, HH68).

Current smokers who attended school and reported school smoking restrictions (21% of the total sample) were asked how the school rules had affected their smoking (SS58, HH67). Response categories included "I don't smoke at school," "It hasn't made any difference," "I have cut down," and "I have quit." Current smokers who attended school and did not report any school smoking restrictions (5% of the total sample) were asked how they felt their smoking *would be* affected if their school *did* have restrictions (SS56b, HH69).

Figure 9-A
Knowledge of Legal Purchase Age for Cigarettes, by Province, Age 10-19, Canada, 1994

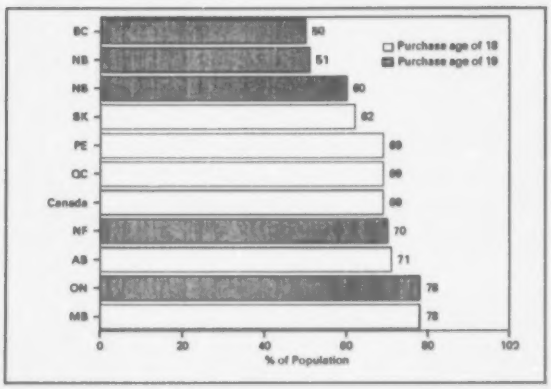
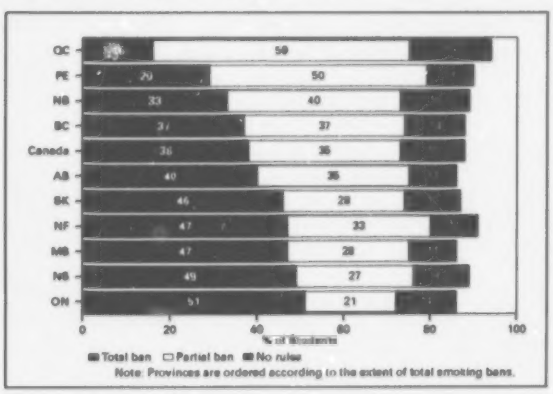


Figure 9-B
School Smoking Restrictions, by Type of Restriction and Province, Students Aged 10-19, Canada, 1994



All youth were asked if they had a paid job. The job did not have to be in a formal workplace and could include, for example, babysitting, cutting lawns, delivering newspapers, and working in a store. Respondents with a paid job (51% of the total sample) were asked to indicate how many hours they usually worked per week (SS63, HH73), if there were any workplace rules pertaining to smoking (SS64a, HH74), and, if so, what kinds of rules were in place (SS65, HH75). Reports of workplace rules are based on self-reports and may not accurately represent the conditions at any given worksite.

Current smokers who have a paid job and reported smoking restrictions in their workplace (7% of the total sample) were asked how the workplace restrictions had affected their smoking (SS66, HH76: response categories are the same as for school restrictions). The potential impact of smoking restrictions on current smokers in workplaces with no rules (9% of the total sample) was assessed by asking them how they felt their smoking would be affected if there were smoking rules in their workplace (SS64b, HH77).

Results

Knowledge of Legal Age to Purchase Cigarettes

Sixty-nine percent of all youth can correctly identify the legal purchase age in their province. Knowledge is highest among current smokers, with 89% correctly identifying the purchase age; 65% of non-smokers know the correct age. Knowledge increases with age, from 55% of 10- to 14-year-olds to 83% of 15- to 19-year-olds (Table 9-1).

Knowledge of purchase age varies considerably by province (Fig. 9-A). Manitoba youth are most likely to correctly identify the purchase age (78%); youth from British Columbia are least likely, at 50% (Table 9-2). Knowledge of legal purchase age does not differ systematically according to the actual legal age of purchase (Fig. 9-A), although the minimum age is 19 in the three provinces where knowledge is lowest.

Reported School Smoking Restrictions

Almost three quarters of all students report at least some restriction on smoking at their school: 38% report a total ban; 35% indicate that there are some restrictions; 15% report no smoking restrictions; and 12% do not know (Table 9-3). Awareness of school smoking restrictions is lowest among 10- to 12-year-olds, with 26% reporting that they do not know. This compares to 11% for the 13-14 year age group, and much lower proportions of older groups (Table 9-3).

No sex differences are found in reports of school smoking restrictions. However, age is a strong factor, with partial bans on smoking increasing from 9% for 10- to 12-year-olds to 60% for 18- to 19-year-olds. The reported prevalence of total bans does not vary much by age.

Examining reports of school restrictions by province (Fig. 9-B) shows that total bans on smoking are least

common in Quebec (16%) and most prevalent in Ontario (51%) and Nova Scotia (49%). Other provinces below the national average of 38% include Prince Edward Island (29%), New Brunswick (33%), and British Columbia (37%). Those above the national average include Alberta (40%), Saskatchewan (46%), Newfoundland (47%), and Manitoba (47%). In every province, students aged 10-14 are much less aware of school restrictions than are older students aged 15-19 (Table 9-4).

Compliance with School Rules

Overall, 70% of students who are aware of school rules report that school smoking rules are obeyed by smokers (Table 9-5). Similar reports of student compliance are obtained from current smokers (72%), former smokers (65%), and non-smokers (69%). Older students (15-19) are substantially more likely to report compliance (80%) than are students aged 10-14 (58%), regardless of sex.

Perceived Impact of School Rules

A majority of current smokers (54%) report that school smoking rules have had no impact on their smoking (Table 9-6). Roughly one quarter of current smokers say they do not smoke at school because of school smoking rules, and 13% have cut down. No sex differences in the reported impact of school rules on smoking are evident. Younger smokers are much more likely to say they do not smoke at school and much less likely than older smokers to say that rules have made no difference.

Current smokers without school smoking restrictions report that if they were exposed to such rules, 5% (moderate sampling variability) would quit, 9% (moderate sampling variability) would cut down on smoking, 46% would not smoke at school, and 37% would not change their smoking habits (Table 9-7). Compared to current smokers who do have school smoking rules, the potential impact reported is larger, especially for not smoking at school: 46% of current smokers without school rules feel that they would not smoke at school if there were smoking restrictions (Table 9-7), while only 24% of current smokers exposed to school rules actually no longer smoke at school (Table 9-6).

Table 9-A
Current Smoking, by School Smoking Restrictions, Sex, and Age, Canada, 1994

	Current Smoking (%)		
	No Rules	Partial Ban	Total Ban
Total, 10-19	**5***	**20**	**13**
10-14	3*	17	6
15-19	#	21	20
Males, 10-19	**5***	**18**	**14**
10-14	4*	13	7*
15-19	#	20	20
Females, 10-19	**4***	**21**	**13**
10-14	#	21	6*
15-19	#	22	20

* Moderate sampling variability; interpret with caution
# Data suppressed due to high sampling variability

Sex differences are small and generally non-significant. The potential reported effects of school smoking rules decrease with age. A majority of older students aged 15-19 said rules would not make a difference (57%, moderate sampling variability), compared to only 35% of students aged 10-14.

School Rules and Smoking Behaviour

Self-reports of the impact of school rules are generally supported by the observed patterns of reported prevalence and the number of cigarettes smoked.

Smoking Prevalence

Prevalence of smoking among students in Canada varies by reported school rules (Table 9-A). The highest prevalence (20%) of current smokers is found in schools where partial smoking bans (some smoking areas) are reported. This compares to a prevalence of 13% at schools with total bans on smoking. Only 5% (moderate sampling variability) of students with no school rules are current smokers. This pattern of high prevalence at schools that allow some smoking is evident across all provinces (data not shown). It is unlikely that schools with no rules actually have lower smoking prevalence; it is more likely that smokers are simply more aware of school rules. In fact, of the 12% of students who report they are not aware of the school rules regarding smoking, 97% (data not shown) of them do not smoke.

Figure 9-C
Weekly Smoking Pattern, by School Smoking Restrictions and Age, Current Smokers Attending School, Canada, 1994

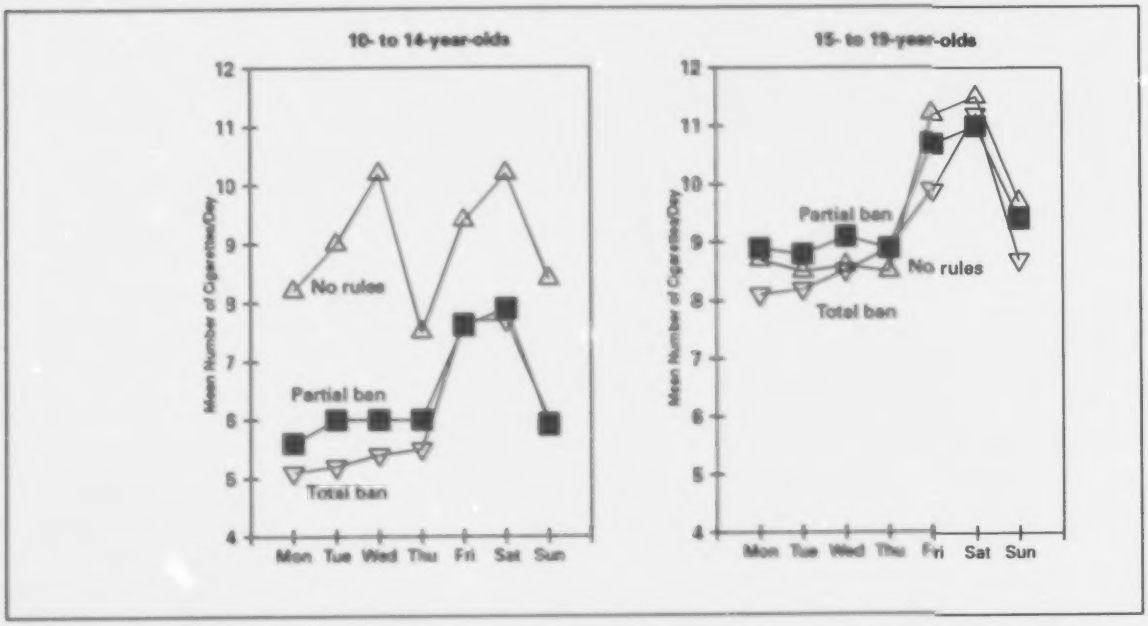


Table 9-B
Mean Daily Cigarette Consumption, by Reported School Smoking Rules, Sex, and Age, Current Smokers Attending School, Canada, 1994

	Mean Daily Cigarette Consumption			
	Total	No Rules	Partial Ban	Total Ban
Total, 10-19	**8.8**	**9.0**	**8.8**	**8.8**
10-14	6.5	9.0	6.4	6.1
15-19	9.5	9.1	9.5	9.5
Males, 10-19	**9.0**	**9.3**	**9.5**	**8.7**
10-14	7.3	8.9	8.0	6.7
15-19	9.6	#	9.9	9.2
Females, 10-19	**8.5**	**8.5**	**8.2**	**8.9**
10-14	5.7	9.3	5.5	5.4
15-19	9.4	#	9.2	9.9

Data suppressed due to high sampling variability

Cigarettes Smoked Daily

Current smokers who do not report school smoking restrictions smoke a mean of 9.0 cigarettes per day, while smokers exposed to either partial or total bans smoke a mean of 8.8 cigarettes per day (Table 9-B). The association between school smoking restrictions and amount smoked appears to be considerable for 10- to 14-year-olds but insignificant for the 15- to 19-year-olds. The mean daily cigarette intake for the 10-14 age group for smokers exposed to no restrictions is almost 50% higher (9.0 cigarettes/day) than for those smokers exposed to partial and total bans (6.4 and 6.1 cigarettes/day, respectively). For the older group, mean intake is 9.5 cigarettes, with little variation by rules. Few sex differences are evident.

Smoking Patterns

Smokers attending school generally smoke less during the week than on weekends (Friday and Saturday), regardless of age and reported school rules (Fig. 9-C). However, younger smokers aged 10-14 who attend schools with at least some reported restrictions smoke fewer cigarettes per day on all days of the week than those reporting no restrictions. This same smoking pattern is observed for both current daily and non-daily smokers (data not shown). Thus, school smoking restrictions (both partial and total bans) are associated with smoking patterns in the younger but not the older age group.

Figure 9-D
Workplace Smoking Restrictions, by Type of Restriction and Province, Youth Aged 10-19 with a Paid Job, Canada, 1994

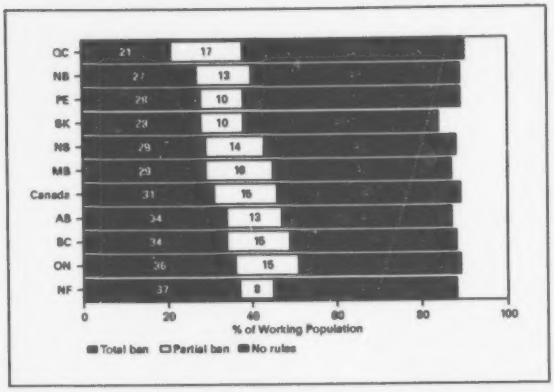


Table 9-C
Current Smoking, by Workplace Smoking Restrictions, Sex, and Age, Youth with a Paid Job, Canada, 1994

	Current Smoking (%)		
	No Rules	Partial Ban	Total Ban
Total, 10-19	**22**	**28**	**13**
10-14	13	18*	7*
15-19	29	29	19
Males, 10-19	**19**	**28**	**13**
10-14	13	#	6*
15-19	24	30	19
Females, 10-19	**25**	**28**	**14**
10-14	13*	#	7*
15-19	34	29	20

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Workplace Smoking Restrictions

Overall, 43% of young people who have a paid job have no workplace smoking rules, 15% have some smoking areas, while 31% are not allowed to smoke at work at all. There is little variation by age (Table 9-8), but females are more likely than males to report a total ban on smoking at their place of work (35% vs. 26%). As with school smoking rules, awareness of workplace rules is lowest among the younger group, with 22% of youth aged 10-14 unaware of smoking restrictions, compared to only 3% (moderate sampling variability) of the 15-19 year age group.

Working youth in Newfoundland (37%) are most likely to report total bans on smoking in the workplace (Fig. 9-D, Table 9-9), followed closely by Ontario, British Columbia, and Alberta. Youth in Quebec (21%) are least likely to report a ban on smoking at work. New Brunswick, Prince Edward Island, Nova Scotia, Saskatchewan, and Manitoba are all below the national average for reported total workplace bans. Ignorance of workplace smoking rules is much higher among younger than older employed youth in every province (Table 9-9).

Perceived Impact of Workplace Smoking Restrictions

Workplace restrictions are somewhat more likely than school restrictions to be associated with self-reported changes in smoking habits. For instance, 24% of smokers say they have either cut down or quit smoking due to workplace restrictions, compared to 19% due to school restrictions. Thirty-seven percent of working youth report that workplace rules made no difference in their smoking. No clear sex differences are found. Reported impact is greater for younger people (10-14), who are more likely than 15- to 19-year-olds to refrain from smoking at work and half as likely to report that workplace rules make no difference (Table 9-10).

Current smokers who have a paid job and report no workplace restrictions on smoking say that if they were exposed to workplace restrictions, 3% (moderate sampling variability) would quit smoking, 22% would cut down, 37% would not smoke at work, and 34% would not change their smoking behaviour (Table 9-11). Males are more likely than females to say that rules would not make a difference (40% vs. 28%). Twice the proportion of younger smokers expect that they would not smoke at work (52% vs. 25%) if rules were in place.

Workplace Smoking Restrictions and Smoking Behaviour

Smoking Prevalence

The prevalence of current smoking is higher among young people employed in workplaces that allow smoking: 22% and 28% where there are no rules or a partial ban, respectively, and 13% where there is a total ban (Table 9-C). Variations in rates of smoking by age are maintained, regardless of workplace rules.

Figure 9-E
Weekly Smoking Pattern, by Workplace Smoking Restrictions, Current Smokers Aged 10-19 with a Paid Job, Canada, 1994

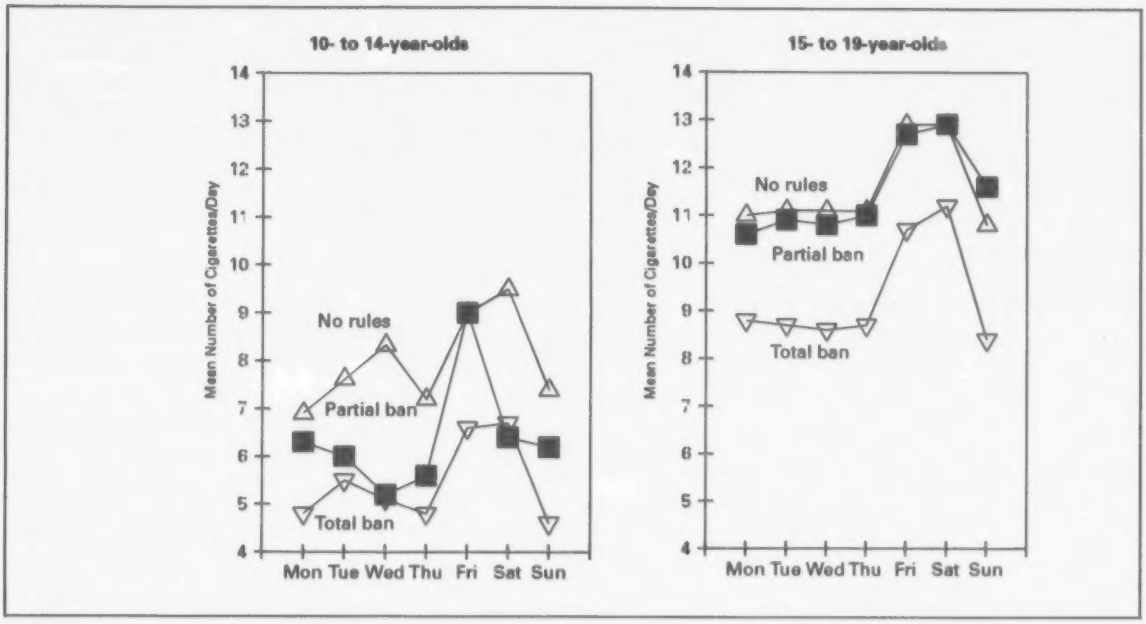


Table 9-D
Mean Daily Cigarette Consumption, by Reported Workplace Smoking Rules, Sex, and Age, Current Smokers with a Paid Job, Canada, 1994

	Mean Daily Cigarette Consumption			
	Total	No Rules	Partial Ban	Total Ban
Total, 10-19	**10.1**	**10.6**	**11.0**	**8.5**
10-14	6.9	8.0	6.4	5.4
15-19	11.1	11.5	11.5	9.3
Males, 10-19	**10.9**	**11.6**	**10.8**	**9.5**
10-14	8.0	9.0	#	6.5
15-19	11.9	12.8	11.0	10.4
Females, 10-19	**9.4**	**9.7**	**11.3**	**7.8**
10-14	5.8	6.7	#	4.6
15-19	10.4	10.6	12.0	8.6

Data suppressed due to high sampling variability

Cigarettes Smoked Daily

The mean number of cigarettes smoked per day by current smokers in workplaces with no restrictions is 10.6 cigarettes. The rate is 11.0 cigarettes for smokers with partial smoking bans and 8.5 cigarettes for those with total bans (Table 9-D). Smoking levels are consistently the lowest among smokers with total workplace bans, regardless of age and sex.

Smoking Patterns

We examined daily smoking patterns and found that smokers who report total workplace smoking bans smoke about two cigarettes per day less than smokers with no restrictions or partial bans on smoking on all days of the week. This is clearest for the older age group (Fig. 9-E) and holds for both males and females (data not shown). However, all smokers show similar weekly smoking patterns, lower during the week and higher on Friday and Saturday, regardless of their exposure to workplace restrictions.

Workplace smoking restrictions appear to have little or no effect on the amount smoked for current non-daily smokers, but there are large differences in the amount smoked by current daily smokers (Table 9-12). Current daily smokers with partial workplace bans smoke two

to three cigarettes more per day than current daily smokers with total bans on workplace smoking.

Discussion

Legal Purchase Age

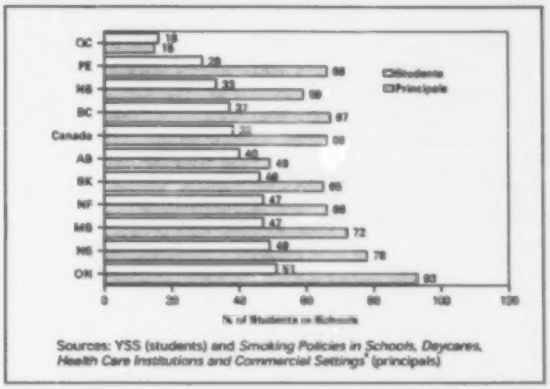
While most current smokers are aware of the legal purchase age for cigarettes, a majority (56%) feel they have easy access to cigarettes (see Table 3-C), and few are refused when they go to a store to make a purchase (see Table 8-4). This suggests that knowledge of the law by youth may be less important than the retailer's awareness, particularly since the retailer, rather than the smoker, is legally responsible, and smokers are not penalized for underage purchase or use. Knowledge of the legal age might deter some young people from attempting to purchase, but low enforcement probably undermines most of the effect of knowledge. The embarrassment of being refused may be the major deterrent youthful smokers face.

School Smoking Restrictions

There is a substantial discrepancy in the prevalence of school rules as reported by students and by school principals (Fig. 9-F). A 1995 study found that 66% of school principals in Canada reported total bans on smoking at school.[4] In the Youth Smoking Survey (YSS), only 38% of students report a total smoking ban, which translates to a 40% difference in reporting of school smoking rules by principals and students. While these two studies did not sample all the same schools in the same time frame, the difference is so large that it is unlikely to be due solely to these differences. Ontario, for example, banned smoking in all schools at the beginning of 1995, but the discrepancy between reports by students and by principals was also large in provinces where no major legislative change occurred. This reporting difference may reflect a lack of awareness by students, a lack of promotion of school smoking rules, a lack of enforcement of the rules, or some combination of these.

Ambiguity in the YSS response categories makes it difficult to determine the actual difference between *no rules*, *some smoking areas*, and *no smoking allowed*, which complicates the interpretation of differences in smoking behaviour by type of restriction. For instance, even where there are no rules, students are not allowed to smoke in classrooms and are at a minimum confined to certain areas. Also, if students are not allowed to smoke anywhere on school property but are allowed to move off the grounds to smoke during school hours

Figure 9-F
Total School Smoking Restrictions Reported by Students Aged 10-19 and School Principals, by Province, Canada, 1994



Sources: YSS (students) and *Smoking Policies in Schools, Daycares, Health Care Institutions and Commercial Settings*[5] (principals)

(as in Ontario), they may interpret this to mean they are allowed to smoke. Another consideration is that students may be confusing smoking areas that are located off the school property, especially those in close proximity to school grounds, with designated smoking areas on the property. It would have been much clearer if the response category had read "no smoking allowed anywhere on school property." Since there is no way to know how students interpreted this question, caution should be used when interpreting these results.

Nevertheless, the findings from the YSS suggest that there may be some benefit of school restrictions in terms of reduced smoking prevalence and amount smoked, especially for the younger youth (10-14). Smoking prevalence is highest at schools where there are partial bans on smoking. The finding that only 5% of current smokers report no school smoking rules is likely related to the fact that smokers are simply more aware of the rules. In fact, there is probably no school in Canada in which there are no restrictions at all on smoking. Current smokers are much more likely to know that smoking is restricted to smoking areas or not allowed on school property and less likely to report no school smoking restrictions. This is confirmed by the fact that 97% of the students who were unaware of the school smoking rules were non-smokers.

Additional support for the benefits of restrictions is found when examining the amount smoked per day by type of restriction. Total bans on smoking are associated with a much greater reduction in smoking levels than partial bans.

These results are consistent with findings from other studies: Pentz et al. [6] provide the most rigorous examination of the impact of smoking policies in California schools. They found that, while all schools in the sample were mandated by the same state legislation, large variations existed in the comprehensiveness and implementation of the policies. Schools with the most comprehensive policies had lower prevalence and levels of student smoking. A cross-sectional study conducted in England and Wales [1] compared smoking prevalence among students (16-19 years old) exposed to varying school smoking restrictions. The lowest smoking prevalence was found in schools where neither staff nor students could smoke. The highest prevalence was found in schools where both staff and students could smoke. Smoking rates during and after school were also lower at schools with no-smoking policies. In contrast, Clarke et al. [2] found that smoking prevalence was not associated with student, staff, or visitor smoking policies in an Australian study. The fact that students attribute little impact to these restrictions does not reduce their importance, since young smokers are reluctant to recognize external influences on their smoking (see Chapter 6).

Workplace Smoking Restrictions

Workplace smoking restrictions are associated with differences in smoking behaviour among youth in the YSS. This is important, since youth smoking tends to increase with number of hours of employment (see Table 3-9). A greater number of smokers and higher smoking levels are found at worksites with no rules or only partial bans on smoking. Differences in smoking prevalence and amount smoked are also found by age and sex. These differences may in part be due to the type of workplace in which older and younger youth and young men and women are likely to be employed. Unfortunately, this cannot be confirmed using the YSS data, as no information regarding the nature of their employment was gathered.

Our findings are consistent with those for adult populations. Dawley et al. [3] found greater rates of participation in smoking cessation and significant changes in smoking behaviour at no-smoking worksites. Significant decreases in daily cigarette consumption in worksites introducing restrictive smoking policies were reported by Jeffery et al. [5] In an extensive survey of workers at indoor worksites, Woodruff et al. [8] found that smoking prevalence was lower and more smokers were contemplating quitting at restricted worksites. Where such controls are adopted voluntarily, it is possible that restrictions are instituted in receptive environments where smoking is not the norm. Cross-sectional data cannot establish causality in such situations. However, when restrictions are mandated by higher authorities, such as municipal councils or ministries of health, the data suggest that they can and do discourage smoking.

Implications for Regulation and Legislation

While based mostly on associations, these findings suggest that school and workplace rules can have an important effect on smoking among young people. This conclusion is consistent with findings of workplace studies of adults, where bans at work are related to a reduction in mean number of cigarettes smoked per day and thus contribute to cessation. The impact of implementing legislation or policies governing workplace smoking may be even more important for adolescents, who may not yet be addicted, than for adults, with more entrenched smoking patterns. Legislation that completely bans smoking in workplaces, including restaurants and bars, may be required in order to have any impact on the smoking behaviour of young employees.

Implications for Education and Message Promotion

The lack of consistency in the reporting of school smoking restrictions between students involved in the YSS and principals from the Survey of Smoking Policies[4] strongly suggests a need for schools to make policies more explicit, which means better promotion and enforcement of school smoking policies. Further, since smoking policies are mostly enforced by school staff, education aimed at increasing their awareness of the benefits of smoke-free schools and increasing their level of acceptance of such policies may promote enforcement by staff. Educating students on the health risks of smoking and second-hand smoke may increase their acceptance of school smoking policies and compliance with regulations (see Chapter 7). Provincial differences in smoking restrictions and their relation to smoking prevalence could be used by the National Strategy to Reduce Tobacco Use to encourage those provinces with low levels of restrictions to implement them. Rules may be most effective as part of a comprehensive program to reduce smoking [6] and should be promoted in this manner to prospective schools and workplaces with large numbers of young workers.

Implications for Future Monitoring and Further Research

Future monitoring of school and workplace restrictions should incorporate longitudinal research designs in which changes to restrictions can be monitored and then linked to individuals' smoking. Longitudinal data are needed in order to establish a causal link and to validate the impact of school and workplace smoking restrictions on smoking behaviour.

Further analysis of the YSS should utilize multivariate techniques that can measure the association of smoking restrictions and smoking, while accounting for other important factors that are also related to smoking. It would also be extremely useful if the School Survey component of the YSS data were linked to additional data collected from each of the schools that was involved in the study. These data could include information about the school environment that would provide a clearer understanding of the relationship between smoking restrictions and smoking behaviour. While it is too late to develop this data linkage for the present survey, future school surveys on youth should involve parallel data collection systems.

The YSS data could also be used to examine the relationship between province-wide tobacco control legislation or policies and adolescent smoking. While the provincial legislation is not included in the YSS data, it is readily available and could easily be incorporated into the YSS data. For instance, provincial tobacco taxes, availability of cigarettes to minors, level of enforcement, and other tobacco control measures aimed at youth could all be linked to the YSS data.

In future administrations of the school component of the YSS, the question pertaining to school rules needs to be refined so that the response categories are clearly defined. The measure should be comprehensive so that all components of the restriction can be identified. For instance, can students smoke inside or outside? Can they smoke at any time of the day? Are teachers and staff exposed to the same restrictions? Must students leave school property to smoke? What are the enforcement procedures? What are the penalties for violations? This information will serve to identify key components of school smoking policies that have the greatest impact on smoking behaviour.

Future research in this area should focus on relating the school environment (e.g., size, grades taught, geographic location, average socioeconomic status of the student population, public, separate, or private school, existence of smoking cessation and health promotion programs, inclusion of smoking-related issues in school health curricula) to smoking behaviour. This will allow examination of the influence of school environmental factors on smoking and a better understanding of which policies will work best in which school environments. Such a multi-level approach has shown the importance of smoke-free bylaws for reducing adult smoking in Canada. [7]

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Table 9-1
Knowledge of Legal Purchase Age for Cigarettes, by Type of Smoker, Sex, and Age, Canada, 1994

		Know Legal Purchase Age (%)			
	Pop. Est. ('000)	Total	Current Smokers	Former Smokers	Have Not Smoked 100 Cigarettes
Total, 10-19	**3,881**	**69**	**89**	**87**	**65**
10-14	1,949	55	83	74*	53
15-19	1,932	83	91	91	80
10-12	1,166	51	75	#	51
13-14	783	62	85	73*	58
15-17	1,149	83	93	93	80
18-19	783	83	88	90	80
Males, 10-19	**1,986**	**68**	**89**	**86**	**64**
10-14	997	54	81	#	52
15-19	989	83	91	91	80
10-12	596	50	76*	#	49
13-14	401	60	83	#	56
15-17	589	82	93	93	79
18-19	400	84	89	88	81
Females, 10-19	**1,896**	**70**	**89**	**92**	**67**
10-14	953	57	84	#	55
15-19	943	83	90	92	80
10-12	571	53	74*	#	53
13-14	382	64	86	#	60
15-17	560	84	94	93	81
18-19	383	82	87	91	79

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-2
Knowledge of Legal Purchase Age for Cigarettes, by Type of Smoker, Province, and Age, Canada, 1994

		Know Legal Purchase Age (%)			
	Pop. Est. ('000)	Total	Current Smokers	Former Smokers	Have Not Smoked 100 Cigarettes
Canada, 10-19	**3,881**	**69**	**89**	**87**	**65**
10-14	1,949	55	83	74*	53
15-19	1,932	83	91	91	80
Newfoundland, 10-19 (19)[a]	**93**	**70**	**93**	**87**	**64**
10-14	45	49	86	#	45
15-19	48	88	95	93	85
Prince Edward Island, 10-19 (18)	**20**	**69**	**94**	#	**64**
10-14	10	51	#	#	49
15-19	10	85	98	#	80
Nova Scotia, 10-19 (19)	**126**	**60**	**88**	#	**55**
10-14	62	40	73	#	38
15-19	64	79	92	#	75
New Brunswick, 10-19 (19)	**107**	**51**	**82**	#	**44**
10-14	52	29	63	#	27
15-19	55	71	86	#	65
Quebec, 10-19 (18)	**966**	**69**	**84**	**81**	**65**
10-14	478	57	81	#	54
15-19	487	80	86	84	78
Ontario, 10-19 (18 or 19)	**1,415**	**78**	**95**	#	**75**
10-14	712	65	95	#	64
15-19	704	90	95	#	88
Manitoba, 10-19 (18)	**150**	**78**	**95**	#	**75**
10-14	75	64	91	#	63
15-19	75	92	96	#	90
Saskatchewan, 10-19 (18)	**148**	**62**	**87**	#	**58**
10-14	77	48	72	#	46
15-19	71	76	91	#	72
Alberta, 10-19 (18)	**387**	**71**	**93**	#	**67**
10-14	202	58	87	#	55
15-19	185	86	95	#	82
British Columbia, 10-19 (19)	**470**	**50**	**80**	#	**44**
10-14	238	33	70	#	30
15-19	232	67	83	#	61

a. Correct legal purchase age given in parentheses.

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 9-3
Reported School Smoking Rules, by Sex and Age, Students Attending School, Canada, 1994

	Pop. Est. ('000)	Reported School Smoking Rules (%)			
		No Rules	Partial Ban	Total Ban	Don't Know
Total, 10-19	**3,606**	**15**	**35**	**38**	**12**
10-14	1,949	25	20	36	20
15-19	1,657	3	53	42	2*
10-12	1,166	33	9	33	26
13-14	783	13	37	40	11
15-17	1,101	2*	50	47	1*
18-19	556	5*	60	31	4*
Males, 10-19	**1,837**	**16**	**35**	**38**	**11**
10-14	997	27	19	34	20
15-19	840	3*	53	43	2*
10-12	596	35	9	32	25
13-14	401	15	35	37	12
15-17	563	#	49	47	#
18-19	277	4*	61	32	#
Females, 10-19	**1,769**	**14**	**36**	**39**	**12**
10-14	953	23	20	37	20
15-19	817	4*	53	41	2*
10-12	571	31	9	34	27
13-14	382	10	38	42	9
15-17	538	4*	50	45	#
18-19	279	5*	58	32	6*

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

F3

Table 9-4
Reported School Smoking Rules, by Province and Age, Students Attending School, Canada, 1994

	Pop. Est. ('000)	Reported Smoking Rules (%)			
		No Rules	Partial Ban	Total Ban	Don't Know
Canada, 10-19	**3,606**	**15**	**35**	**38**	**12**
10-14	1,949	25	20	36	20
15-19	1,657	3	53	42	2*
Newfoundland, 10-19	**85**	**11**	**33**	**47**	**10**
10-14	45	19	12	51	17
15-19	40	#	55	42	#
Prince Edward Island, 10-19	**18**	**11**	**50**	**29**	**11**
10-14	10	20	14	49	17
15-19	8	#	90	#	#
Nova Scotia, 10-19	**118**	**13**	**27**	**49**	**11**
10-14	62	23	13	45	19
15-19	56	#	41	53	#
New Brunswick, 10-19	**97**	**16**	**40**	**33**	**11**
10-14	52	28	13	41	18
15-19	45	#	71	24	#
Quebec, 10-19	**894**	**19**	**59**	**16**	**7**
10-14	478	30	44	14	12
15-19	416	6	76	17	#
Ontario, 10-19	**1,354**	**14**	**21**	**51**	**14**
10-14	712	25	10	41	24
15-19	643	#	34	61	#
Manitoba, 10-19	**133**	**11**	**28**	**47**	**14**
10-14	75	19	11	48	23
15-19	58	#	49	47	#
Saskatchewan, 10-19	**137**	**13**	**28**	**46**	**14**
10-14	77	22	14	41	23
15-19	60	#	45	51	#
Alberta, 10-19	**351**	**11**	**35**	**40**	**14**
10-14	202	19	8	51	22
15-19	149	#	70	25	#
British Columbia, 10-19	**420**	**14**	**37**	**37**	**12**
10-14	238	22	22	35	20
15-19	183	#	55	39	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-5
Compliance with School Smoking Rules, by Type of Smoker, Sex, and Age, Students Attending School and Aware of Rules, Canada, 1994

		Compliance with School Smoking Rules (%)			
	Pop. Est. ('000)	Total	Current Smokers	Former Smokers	Have Not Smoked 100 Cigarettes
Total, 10-19	**2,722**	**70**	**72**	**65**	**69**
10-14	1,146	58	58	#	58
15-19	1,576	78	77	70	78
10-12	529	60	64	#	60
13-14	617	56	57	#	56
15-17	1,062	73	70	59*	74
18-19	514	88	87	94	88
Males, 10-19	**1,378**	**72**	**74**	**61***	**72**
10-14	571	60	59	#	60
15-19	807	80	78	57*	81
10-12	268	66	71*	#	65
13-14	303	55	56	#	54
15-17	547	76	72	#	78
18-19	260	89	86	#	90
Females, 10-19	**1,344**	**67**	**71**	**71**	**68**
10-14	575	56	58	#	56
15-19	769	75	75	82	75
10-12	261	54	58*	#	54
13-14	314	57	58	#	58
15-17	515	69	69	77*	69
18-19	254	87	88	#	87

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 9-6
Reported Impact of School Smoking Restrictions on Smoking, by Sex and Age, Current Smokers Attending School with Smoking Rules, Canada, 1994

	Pop. Est. ('000)	Reported Impact on Smoking (%)			
		Don't Smoke at School	No Difference	Cut Down on Smoking	Quit Smoking[a]
Total, 10-19	**812**	**24**	**54**	**13**	**6**
10-14	342	35	42	10	9
15-19	470	17	62	15	3*
10-12	115	48	26	11*	12*
13-14	227	30	49	10*	8*
15-17	314	16	65	14	4*
18-19	156	20*	56	19*	#
Males, 10-19	**402**	**26**	**54**	**13**	**6***
10-14	163	40	39	7*	11*
15-19	239	19	62	15	#
10-12	61	48	22*	#	17*
13-14	103	35	48	#	8*
15-17	151	17*	65	12*	#
18-19	88	21*	56	21*	#
Females, 10-19	**410**	**22**	**55**	**14**	**5***
10-14	179	32	44	12*	8
15-19	231	16	62	15	#
10-12	54	48	30*	#	#
13-14	125	26	50	14*	8*
15-17	163	14*	64	15*	#
18-19	68	20*	57	16*	#

a. Because these data are reports of current smokers, it is unclear why any of them responded "quit smoking." If they had quit, they should not have been listed as current smokers. Some possible reasons for the apparent discrepancy include misinterpretation of the question, confusion in the response categories, or having quit within the week prior to the administration of the survey.

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-7
Potential Impact of School Smoking Restrictions on Smoking, by Sex and Age, Current Smokers Attending School Without Smoking Rules, Canada, 1994

		Potential Impact on Smoking (%)			
	Pop. Est. ('000)	Would Not Smoke at School	Would Not Make a Difference	Would Cut Down on Smoking	Would Quit Smoking
Total, 10-19	**188**	**46**	**37**	**9***	**5***
10-14	171	48	35	8*	#
15-19	16	#	57*	#	#
10-12	115	50	32	10*	#
13-14	56	46	40*	#	#
15-17	9	#	#	#	#
18-19	8	#	#	#	#
Males, 10-19	**105**	**44**	**40**	#	#
10-14	99	47	37	#	#
15-19	5	#	#	#	#
10-12	68	51	33*	#	#
13-14	32	39*	44*	#	#
15-17	#	#	#	#	#
18-19	#	#	#	#	#
Females, 10-19	**83**	**47**	**34***	#	#
10-14	72	51	32*	#	#
15-19	11	#	#	#	#
10-12	48	49*	30*	#	#
13-14	24	54*	35*	#	#
15-17	#	#	#	#	#
18-19	#	#	#	#	#

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 9-8
Reported Workplace Smoking Rules, by Sex and Age, Youth with a Paid Job, Canada, 1994

	Pop. Est. ('000)	Reported Workplace Smoking Rules (%)			
		No Rules	Some Smoking Areas	Total Ban on Smoking	Don't Know
Total, 10-19	**1,968**	**43**	**15**	**31**	**12**
10-14	976	43	5	31	22
15-19	991	43	24	30	3*
10-12	506	45	4*	29	23
13-14	471	41	5*	34	20
15-17	533	48	18	30	4*
18-19	458	37	32	30	#
Males, 10-19	**936**	**49**	**16**	**26**	**9**
10-14	468	51	5*	27	17
15-19	467	47	26	25	#
10-12	253	52	4*	23	21
13-14	215	51	6*	31	13
15-17	239	53	21	23	#
18-19	228	41	32	27	#
Females, 10-19	**1,032**	**37**	**14**	**35**	**14**
10-14	508	35	4*	35	26
15-19	524	39	22	35	4*
10-12	253	37	3*	34	26
13-14	256	32	5*	37	26
15-17	294	44	15	36	5*
18-19	230	33	32	34	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-9
Reported Workplace Smoking Rules, by Province and Age, Youth with a Paid Job, Canada, 1994

	Pop. Est. ('000)	Reported Workplace Smoking Rules (%)			
		No Rules	Partial Ban	Total Ban	Don't Know
Canada, 10-19	**1,968**	**43**	**15**	**31**	**12**
10-14	976	43	5	31	22
15-19	991	43	24	30	3*
Newfoundland, 10-19	**34**	**43**	**8**	**37**	**12**
10-14	17	46	#	31	21
15-19	17	40	14*	42	#
Prince Edward Island, 10-19	**11**	**51**	**10**	**28**	**11**
10-14	5	43	#	29	23
15-19	6	57	#	27*	#
Nova Scotia, 10-19	**62**	**45**	**14**	**29**	**13**
10-14	29	42	#	31	23
15-19	32	47	22	27	#
New Brunswick, 10-19	**54**	**49**	**13**	**27**	**11**
10-14	26	49	5*	25	20
15-19	28	49	20	28	#
Quebec, 10-19	**464**	**52**	**17**	**21**	**10**
10-14	248	57	5*	21	17
15-19	216	47	29	21	#
Ontario, 10-19	**705**	**38**	**15**	**36**	**11**
10-14	338	37	#	37	22
15-19	368	39	24	35	#
Manitoba, 10-19	**84**	**42**	**16**	**29**	**13**
10-14	39	40	6*	27	27
15-19	45	44	23	30	#
Saskatchewan, 10-19	**84**	**48**	**10**	**28**	**17**
10-14	45	40	#	28	28
15-19	40	52	17	27	#
Alberta, 10-19	**223**	**40**	**13**	**34**	**13**
10-14	114	36	5*	35	24
15-19	109	44	20	33	#
British Columbia, 10-19	**248**	**39**	**15**	**34**	**12**
10-14	117	35	#	36	24
15-19	132	42	24	32	#

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-10
Reported Impact of Workplace Smoking Restrictions on Smoking, by Sex and Age, Current Smokers with a Paid Job with Smoking Restrictions, Canada, 1994

		Reported Impact on Smoking (%)			
	Pop. Est. ('000)	Don't Smoke at Work	No Difference	Cut Down on Smoking	Quit Smoking[a]
Total, 10-19	**274**	**37**	**37**	**16**	**8***
10-14	117	50	23	8*	13*
15-19	157	27	47	21*	#
10-12	46	56	16*	#	14*
13-14	72	47	27	9*	13*
15-17	60	34*	47	#	#
18-19	97	23*	47	28*	#
Males, 10-19	**120**	**37**	**38**	**18**	**#**
10-14	48	53	19*	#	#
15-19	72	27*	50	22*	#
10-12	21	55*	#	#	#
13-14	27	52	27*	#	#
15-17	23	34*	48*	#	#
18-19	49	23*	51	25*	#
Females, 10-19	**154**	**37**	**36**	**15**	**10***
10-14	69	48	26*	#	15*
15-19	85	28*	45	21*	#
10-12	25	57	22*	#	#
13-14	44	44	27*	#	#
15-17	36	34*	47	#	#
18-19	49	23*	43*	31*	#

a. Because these data are reports of current smokers, it is unclear why any of them responded "quit smoking." If they had quit, they should not have been listed as current smokers. Some possible reasons for the apparent discrepancy include misinterpretation of the question, confusion in the response categories, or having quit within the week prior to the administration of the survey.

* Moderate sampling variability; interpret with caution

\# Data suppressed due to high sampling variability

Table 9-11
Potential Impact of Workplace Smoking Restrictions on Smoking, by Sex and Age, Current Smokers with a Paid Job with No Smoking Restrictions, Canada, 1994

	Pop. Est. ('000)	Potential Impact on Smoking (%)			
		Would Not Smoke at Work	Would Not Make a Difference	Would Cut Down on Smoking	Would Quit Smoking
Total, 10-19	**333**	**37**	**34**	**22**	**3***
10-14	169	52	32	7*	#
15-19	164	25	36	34	#
10-12	70	53	31*	#	#
13-14	100	52	32	9*	#
15-17	96	30*	35	32*	#
18-19	69	19*	36*	36*	#
Males, 10-19	**162**	**35**	**40**	**16***	#
10-14	90	44	40	#	#
15-19	72	27*	41	26*	#
10-12	43	49*	36*	#	#
13-14	47	41*	43	#	#
15-17	36	33*	41*	#	#
18-19	36	#	40*	29*	#
Females, 10-19	**172**	**39**	**28**	**27**	#
10-14	79	60	23*	9*	#
15-19	92	24*	32*	40	#
10-12	27	59*	25*	#	#
13-14	52	61	23*	#	#
15-17	60	28*	31*	37*	#
18-19	33	#	32*	44*	#

* Moderate sampling variability; interpret with caution

Data suppressed due to high sampling variability

Table 9-12
Weekly Smoking Pattern, by Workplace Smoking Restrictions, Current Daily and Non-daily Smokers with a Paid Job, Canada, 1994

		Mean Daily Cigarette Consumption						
Type of Restriction	Pop. Est. ('000)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Current Daily Smokers								
Total ban	43	10.3	10.4	10.2	10.4	12.6	13.2	10.3
Partial ban	53	13.1	13.4	13.3	13.1	15.4	15.5	13.9
No rules	116	12.2	12.2	12.3	12.2	14.0	14.2	12.2
Current Non-daily Smokers								
Total ban	32	3.3	3.3	3.2	2.8	4.3	4.5	2.4
Partial ban	23	3.4	3.7	3.5	4.4	5.6	5.0	4.7
No rules	53	4.0	4.8	5.2	4.5	6.1	6.2	3.7

Chapter 10

Conclusion

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Sex, Age, and Smoking Behaviour

Provincial Differences

Implications of These Findings
Implications for Regulation and Legislation
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Introduction

The purpose of this chapter is to highlight selected findings of the Youth Smoking Survey (YSS) in a search for general conclusions and an answer to the question, "Did the YSS meet its objectives?" Rather than attempt to summarize all of the results of this large and comprehensive survey, the focus here is on the policy implications of the previous seven chapters, especially those implications that are specific to certain age groups and provinces.

For a more detailed treatment, the highlights sections of Chapters 3-9 provide a ready summary of the principal findings of this Technical Report, while the discussion sections deal with the implications of the findings for (a) regulation and legislation, (b) education and message promotion, and (c) future monitoring and further research.

A second purpose of this chapter is to examine some of the evidence of interrelationships that reflect on the social/cognitive/policy model described in Chapter 1.

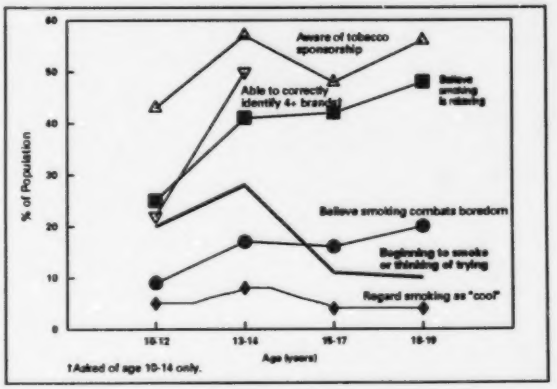
Sex, Age, and Smoking Behaviour

The findings of the YSS are remarkable for the absence of male-female differences. Not only is there no difference between girls and boys or young women and young men with regard to most aspects of smoking behaviour (Chapters 3 and 4), there is also very little difference between the sexes in social influences (Chapter 5), beliefs and attitudes (Chapter 6), or knowledge of the health risks of smoking (Chapter 7). Both sexes also have similar views and experiences with regard to the marketing of cigarettes (Chapter 8) and the regulation of public smoking (Chapter 9).

The few sex-based differences of note are:

- the stronger association between the smoking of girls and their mothers than between the smoking of boys and their mothers (Table 5-B);
- the greater awareness of young women of the harm caused to a fetus by smoking during pregnancy (Table 7-8);
- the greater likelihood that young women are restricted from smoking at work than are young men (Table 9-8); and

Figure 10-A
Early Teens: The Prime Age for Recruiting New Smokers, YSS, Canada, 1994



- the greater awareness of male youth of tobacco company advertising for sports events, while young women are more likely to remember such advertising for music and cultural events (Table 8-13).

Age differences in the YSS are far more impressive in their magnitude and consistency than are sex differences, and this is apparent in every one of the preceding seven chapters. Further, these age differences make it clear that the key period from the point of view of establishing the smoking habit is 13-14 years (Fig. 10-A). The following evidence on smoking behaviour supports this conclusion:

- Until the age of 13, experimenting or beginning smokers exceed current smokers, while, from age 14 onward, there is an ever-widening gap between the two types of smoker, with the current smokers claiming a greater share of each successive age group (Fig. 3-A).

- The average number of cigarettes smoked daily increases sharply after age 13-14 (Table 3-4), as does the proportion of current smokers who smoke daily (Table 3-1).

- At age 13-14 years, the proportion of non-smokers who are *considering* smoking is at its highest (Fig. 3-F).

- Current smokers aged 13-14 are much less likely than older age groups to report compliance with school smoking restrictions (Table 9-5).

Fortunately, at age 13, there is a substantial jump in the proportion of "past experimenters" (Table 3-1) – that is, youth who have smoked fewer than 100 cigarettes to that point in their lives and have not smoked at all in the past 30 days (although this group needs to be monitored to confirm that they *remain* past experimenters).

The behaviour of these young smokers is consistent with their beliefs. While the cross-sectional nature of the data makes it impossible to specify the causal relationship, it is fair to conclude that the nature of these beliefs buttresses the decision to experiment with, and then to continue, smoking:

- Smokers aged 13-14 do substantially worse than older smokers at recalling health problems (Table 7-5) and most warning labels (Table 7-8).

- Current smokers aged 13-14 are sharply more likely than 10- to 12-year-olds to perceive some benefits of smoking – namely, that it helps the smoker relax and deal with boredom; however, starting at this age, the proportion of smokers who acknowledge the addictiveness of tobacco increases sharply (Table 6-2).

Purchasing practices and restrictions – or the lack thereof – also serve to buttress the decision to smoke:

- From age 15 onward, the corner store replaces another person as the principal source of cigarettes (Fig. 8-A); compared to 13- to 14-year-olds, only about *half* as many 15- to 17-year-olds of either sex get their cigarettes from another person (Table 8-1).

- While it is difficult or impossible to control access to cigarettes when another person is the usual source, control at the corner store is not much better: only half of all 13- to 14-year-olds who had attempted a purchase of cigarettes had been asked for proof of age (Table 8-4), although 85% of current smokers at this young age know the minimum age for legal purchase (Table 9-1).

- Through age 13-14, more than half of all smokers who had ever purchased cigarettes reported that they sometimes buy single cigarettes (which cannot be legally sold anywhere in Canada); this purchasing practice is only half as common among the next older age group (Table 8-6).

Finally, it is clear that tobacco marketing makes a considerable impression on 13- to 14-year-olds. Again, while a strict interpretation of the survey design precludes any cause-effect attribution, the data certainly raise questions about the effect of tobacco marketing practices on the beliefs, attitudes, and behaviour of these early-teen smokers:

- Of all age groups, it is 13- to 14-year-olds who are most likely to report having seen advertising for events sponsored by tobacco companies; this is true for both sexes and many locations of advertising, especially billboards, magazines, and newspapers (Table 8-12).

- Given this high level of awareness of the only form of tobacco advertising legal at the time of the YSS, it is distressing but not surprising that half of all 13- to 14-year-olds are able to correctly identify cigarette brands by their colours and design, even when all text and logos have been removed (Table 8-11).

- A brand preference is established for the vast majority of smokers from the youngest age, and there is a shift to one brand in particular starting at age 13-14 (Table 8-9).

- In light of these findings, it is not surprising that the age of smoking initiation has dropped steadily in recent years (Fig. 3-D).

Provincial Differences

As described in Chapters 1 and 2, one of the unique features of the YSS is a sample that provides for reliable estimates at the provincial level for many of the key variables. This feature is important, because the nature of tobacco control varies from province to province, providing a kind of "natural experiment" with considerable potential for understanding how policies and programs may affect smoking-related behaviour.

The preceding seven chapters illustrate how beliefs, attitudes, knowledge, social influences, cigarette purchasing, and smoking behaviour vary at the provincial level. While a full summary of provincial differences is not practical in this chapter, some patterns of findings are worth noting.

Youth smoking prevalence varies widely among provinces (the highest rate being over 1.5 times the lowest) and is highly correlated with adult smoking prevalence (Fig. 10-B). Four distinct patterns exist:

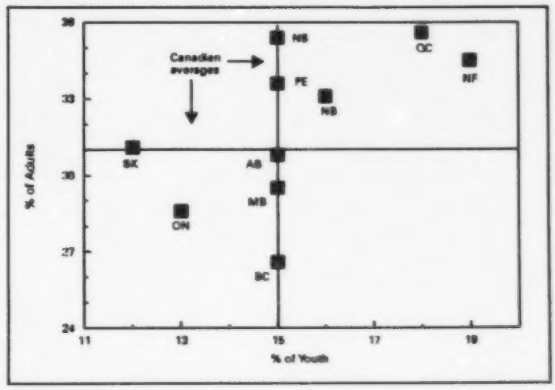
- youth who emulate adult practices for the better (Ontario);
- youth who emulate adult practices for the worse (Quebec, Newfoundland, New Brunswick);
- youth whose smoking levels are comparatively high, given low adult levels in their province (British Columbia); and, finally,
- youth who smoke less than might be expected, given adult prevalence levels for their province (Saskatchewan, Nova Scotia, Prince Edward Island).

While modelling of adult behaviour, especially such a "forbidden" behaviour as smoking, is to be expected, the interesting cases are provided by youth-adult *inconsistency* in smoking. While beyond the scope of this report, it would be important to know, for example, how Saskatchewan, Nova Scotia, and Prince Edward Island succeed in discouraging youth smoking and what forces encourage youth smoking in British Columbia.

Other relationships within and among provinces are instructive. For example, Quebec youth are least likely to acknowledge the health dangers of occasional smoking or the addictiveness of tobacco (Table 6-4) – a combination of beliefs conducive to early experimentation and establishment of smoking as a habit. Thus, it is not surprising that boys and girls aged 10-14 in Quebec are almost twice as likely to smoke as the average Canadian (Table 3-5). Their easy access to cigarettes facilitates the transition to regular smoking (Fig. 3-E).

In light of the apparent importance of access to cigarettes, provincial differences in the usual location for the purchase of cigarettes may provide some insights into the need for greater regulation. While corner stores are the most common source overall, this is only because they are clearly the source of choice in Ontario and Quebec, particularly the latter (Table 8-3). Gas stations are the more likely source of cigarettes for youthful purchasers throughout the four western provinces, yet access to cigarettes in these provinces is around or lower than the Canadian average (Fig. 3-E). Evidently, the Prairie provinces, especially Alberta, are reasonably successful in controlling youth access to cigarettes, at least according to youth aged 10-14.

Figure 10-B
Prevalence of Current Smoking, by Province, Youth 10-19 and Adults 20+, Canada, 1994



Interestingly, in three of the four Atlantic provinces (all but Nova Scotia), another person figures prominently as the usual source of cigarettes (Table 8-3). Further research is needed to identify whether this person is a friend who willingly shares cigarettes, a family member who unknowingly supplies them, or an older youth who resells them to underage buyers. The absence in Nova Scotia of other persons as an important source of cigarettes may be instructive for the neighbouring provinces.

Implications of These Findings

Surveys of older cohorts of Canadians (age 25+) have long shown that men are more likely than women to smoke and that male smokers consume more cigarettes per day.[5] Recent surveys confirm that this pattern persists among adult Canadians as of 1994-95. [6] Among youth, in contrast, the near-equality of the sexes in the type of smoker and amount smoked daily (Table 3-4) is testimony to the success of the tobacco manufacturers' efforts to target young women. [1]

Because of these patterns of findings regarding sex differences, it is appropriate that tobacco control programs target women. [3] Moreover, these results suggest that it is *younger women* and even girls who should be targeted for tobacco control, just as they have been targeted by the tobacco companies.

However, the evidence from the YSS summarized above suggests even more strongly that it is *young people of both sexes* who should be the focus of tobacco control efforts, for age is a much more

important variable than sex in the establishment of the smoking habit. In particular, it is clear that age 13-14 is a crucial age for youth to move from experimentation with cigarettes to regular smoking and from acquiring cigarettes from others to purchasing them at a store. This behaviour is reinforced by, if not actually caused by, an acute awareness of tobacco promotion and a tendency to dismiss or downplay the health dangers of tobacco, as noted above.

Further, prevention and cessation efforts need to become more effective with youth who are below average academically (Table 3-8) and who work more than 10 hours weekly (Table 3-9).

Implications for Regulation and Legislation

The influence of friends and the role of curiosity are powerful influences in the onset of smoking (Fig. 6-C) that are unlikely to disappear in response to health education. Thus, stronger measures are needed. Indeed, these findings provide support for many proposals currently under consideration by governments,[2] specifically:

- *Ban tobacco advertising* – because young teens have shown themselves to be particularly susceptible to tobacco marketing efforts (even at a time when advertising was more highly restricted than it is at present). This is especially important because tobacco companies steadfastly maintain that they do not target youthful non-smokers, only older, established smokers; yet they are obviously making a substantial impression on 13- to 14-year-old non-smokers.

- *Disallow the tobacco companies from using sponsorships to promote awareness of their products* – because young teens are highly conscious of these sponsorships and the products promoted by the sponsorship activities, thus contradicting tobacco company claims about the targets of their efforts.

- *Require plain or generic packaging* – because sponsorship reinforces other marketing efforts by emphasizing visual links with the cigarette package, and because young teens, especially boys, are highly aware of car racing and other sponsored events and exhibit loyalty to the brands associated with these sponsorships.

- *Ban tobacco promotions in stores* – because teens start purchasing cigarettes at an early age, especially in corner stores and gas stations, which are plentiful, open long hours, and the source of snacks, video games, and other attractions for youth.

- *Rigorously enforce the age restrictions on purchasing tobacco* – because underage purchasing is common, even though knowledge of the minimum legal age is widespread, and demanding proof of age remains the exception, even for 13- to 14-year-old smokers.

- *Require modifications to tobacco products to reduce their addictive potential* – because it is the capacity of cigarettes to addict the young smoker that is a precondition of long-term use and certain health damage.

- *Expand and enforce restrictions on smoking at school, work, and other settings frequented by youth* – because restrictions on smoking establish healthy smoke-free areas, reinforce non-smoking as the norm, discourage non-smokers from starting, and help smokers to eventually quit by requiring them to reduce their daily consumption.

Implications for Education and Message Promotion

While the results of the YSS point to the need for regulation and legislation to derail the experimentation of young teens with cigarettes, it is equally clear that educational efforts must be intensified for this age group and for younger Canadians. In particular:

- increase the proportion of health warnings and other messages that refer to short-term consequences meaningful to youth in addition to fetal damage: e.g., bad breath, smelliness, reduced attractiveness to dates, impaired fitness, wrinkling, impotence, and manipulation by the tobacco companies; and
- take greater advantage of the possibility of positive social influence by mothers and friends to discourage smoking among youth, by raising their awareness of the extent to which they are important role models.

Implications for Future Monitoring and Further Research

This synthesis of the findings highlights the need for further understanding on several topics, while still others are identified in the previous seven chapters:

- Continue monitoring the smoking-related behaviour and beliefs of youth starting at age 10 – because it is apparent from the YSS that the social and cognitive influences on later smoking begin to take shape by this age.

- Monitor youth smoking with samples that are sufficiently large for reliable data for detailed age groups – because it is clear that there are year-to-year changes in behaviour and beliefs that are too important for the five-year age groups that are typical of large national surveys.

- Continue to design national surveys to provide reliable province-level data – because there are meaningful differences in smoking-related behaviour and beliefs within the Atlantic and Prairie regions, and it is important to be able to relate these to provincial tobacco control efforts.

- Conduct longitudinal studies to establish the natural history of smoking uptake, clarifying, for example, whether youth classified by the YSS as past experimenters ever return to smoking.

- Continue to monitor the psychosocial correlates of smoking, as these provide both explanations for youth behaviour and guidance for intervention.

Implications for National Strategic Goals

The most recent update of the directional paper for the National Strategy to Reduce Tobacco Use in Canada [4] laid out a number of objectives, but few of these were specific to youth. At the time the original directional paper was prepared in 1987, national data on youth smoking were scarce, and data on beliefs and social influences were virtually non-existent. [7] Since that time, reliable information on youth smoking has improved markedly, thanks to the YSS and other studies initiated under the Tobacco Demand Reduction Strategy. [3]

On the basis of the findings of the YSS, the following goals are suggested for inclusion in the National Strategy, with a target year of 2000:

- Reduce the prevalence of current smoking among youth aged 10-19 from 15% to 10% overall (4% for age 10-14 and 15% for age 15-19).

- Postpone from age 13 to 15 the age at which beginning smokers are outnumbered by current smokers.

- Ensure that 95% of youth receive and remember formal education at school on the hazards of smoking.

- Enforce restrictions on purchasing cigarettes such that 100% of underage youth are asked for their age when attempting a purchase and no single cigarettes are sold by retailers.

- Extend restrictions on smoking at school so that all school buildings in Canada are completely smoke-free.

- Implement the legislative and regulatory measures outlined above.

- Continue to monitor youth smoking with national surveys large enough for reliable data by province and single year of age.

Success of the YSS: A Preliminary Assessment

The appropriate time to evaluate the success of a survey is 2-3 years after the major results have been published. Such a delay allows for program managers and policymakers to follow up on the implications of the results. Whether or not they are *successful* in their attempts at tobacco control is, ultimately, a political matter. But whether or not they are persuaded by the data that they should make the effort is not so much political as it is a reflection of the quality of the survey, including the analysis of the data and the dissemination of the results. Only one of the objectives of the YSS clearly requires such a delay before evaluation – that is, "in the long run, with the possibility of future repetitions, to form an integral part of Canada's tobacco consumption monitoring system."

However, it is not too early to offer a preliminary assessment of the success of the YSS in meeting three of its objectives as described in Chapter 1:

- to provide the most detailed national picture of youth smoking behaviour yet obtained, especially baseline data on many topics for the crucial years of age 10-14;
- to provide insights into the social, regulatory, educational, and commercial influences that youth face in deciding whether or not to experiment with or take up smoking, continue with the habit, or quit; and
- to establish a resource for making sound, evidence-based decisions on federal and provincial policies and programs to control tobacco use among Canada's youth.

A Detailed National Picture

Even a quick perusal of the highlights of Chapters 3-9 provides convincing evidence that a detailed national picture of youth smoking has been obtained. Not only does the YSS provide the most thorough national coverage of student smoking behaviour in 16 years, it is also the largest survey ever to include both students and non-students in the age range 10-19 (see Table 1-A). Moreover, the YSS provides both national and provincial data on single years of age for many important variables.

The YSS surveyed many topics nationally for the first time in Canada:

- future expectations of smoking behaviour (Chapter 3);
- social influences, such as parental attitudes and the smoking behaviour of teachers and friends (Chapter 5);
- educational/regulatory influences, such as attitudes toward smoking and pack warnings (Chapter 6), recall and credibility of pack warnings (Chapter 7), awareness of own brand contents (Chapter 7), and perceived and anticipated impact of restrictions at school and at work (Chapter 9); and
- commercial/marketing influences, such as awareness of and beliefs about tobacco industry sponsorship (Chapter 8); purchasing practices, such as ease of access to tobacco products and usual source and amount (Chapter 8); and brand recognition, appeal, and loyalty (Chapter 8).

Insights and Guidance

A more careful study of Chapters 3-7 reveals the YSS as a rich resource for insights into the social, regulatory, educational, and commercial influences on smoking-related behaviour (Fig. 1-F). For example, Chapter 5 reveals the strong influence of friends and mothers on the young smoker, while Chapter 6 documents how beliefs about the hazards of smoking can be self-serving for the young smoker, especially at age 13-14. While not all smoking is preceded by the purchase of cigarettes, it is clear that ease of access is correlated with the overall prevalence of youth smoking within a province (Chapter 8). Restrictions on purchasing cigarettes and on smoking in public places can be effective in curtailing smoking (Chapter 9) and encouraging quitting (Chapter 4). Such restrictions, when enforced, along with message promotion and education, when provided in a memorable fashion (Chapter 7), are essential for countering the very persuasive appeals of tobacco manufacturers (Chapter 8).

Conclusion

It seems fair to conclude, even at this early stage, that the YSS is well on its way to meeting its objectives. If it provides guidance for a more effective tobacco control effort in the near term, it will have proved its worth. The authors of this Technical Report hope that it provides a fair measure of such guidance, but also encourages further analysis of these complex inter-relationships and influences on youth smoking behaviour.

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